ISSUES IN IDENTIFYING AND TREATING SUBSTANCE ABUSERS AMONG HOSPITALIZED PATIENTS

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1985

Contents

Chapter	Page
1 SUMMARY	1
2 INTRODUCTION	6
2.1 Topic Outline	6
2.2 Objectives	6
3 CONSEQUENCES TO HEALTH CARE OF ALCOHOL ABUSE	7
3.1 Alcoholism and Alcohol-Related Disorders	7
3.2 Prevalence of Alcohol-Related Problems Among Inpatients	9
3.3 Economic Impacts on the Health Care System	11
4 SCREENING/ASSESSMENT OF PATIENTS WHO ABUSE ALCOHOL	15
4.1 A Context for Screening	15
4.2 Important Variables	16
4.3 Measurement	17
5 MOBILIZING HOSPITAL STAFF TO SCREEN FOR ALCOHOLISM	23
5.1 Deficiencies in Knowledge	23
5.2 Negative Attitudes	25
5.3 Barriers Within the Alcoholism Field	26
5.4 Institutional Barriers	27
5.5 Proposed Remedies	27
6 THE HOSPITAL AS A POINT OF ENTRY INTO TREATMENT	30
6.1 Hospital-Based Treatment Programs	31
6.2 Disadvantages of the Hospital-Based Programs	32
6.3 Evolution in Program Design	32
6.4 Cost-Effectiveness of Different Programs	33
6.5 Trend in Screening Hospital Inpatients	34
7 CONCLUSIONS	35
REFERENCES	37

1 Summary

Introduction

This paper focuses on patients with alcohol (or other substance abuse) problems hospitalized to treat a variety of medical complications but whose underlying primary addictive disorder escapes diagnosis and treatment.

An argument is considered for intervening with these patients and diverting them as required into the network of addictions treatment services. This approach assumes that such patients are large in number, that they frequently relapse and then require further hospitalization at growing expense to the health care system.

Consequences to Health Care of Alcohol Abuse

Intervention and diversion start with clear identification of alcohol-related cases. However, accurate case-finding is hampered by many factors, including the complexity of alcohol's effects, the myriad ways in which alcohol can cause injury, and the remaining gaps in scientific knowledge about addictive illness.

In an acute care setting, the medical model of alcoholism usually prevails. It identifies the *alcohol dependence syndrome (ADS),* the core disability of alcoholism, which in varying degree is marked by a progression from psychic to physical dependence on ethanol as indicated by loss of control over drinking and withdrawal if the person stops drinking. However, these indicators better characterize the advanced stages of alcoholism.

The concept of *alcohol abuse* has been added to account for observations that heavy use of alcohol often leads to degrees of impairment in physical health, psychological adjustment, family and community relations, and occupational stability, either alone or in combination with the ADS.

Definitional problems remain, however, in terms of specification of the nature, severity, and frequency of problems indicative of "alcohol abuse." These complications, along with the subtleties of alcohol's pathogenic effects, make case-finding more difficult and intervention less effective.

Research indicates that the prevalence of patients in acute care hospitals with alcohol-related problems ranges from 10% to 60% and varies according to such factors as type of hospital unit, patients' sex, region, and country. It has been suggested that alcohol-abusing patients comprise about 7% to 15% of general ward populations in Canadian hospitals. Given high probabilities of under-reporting, a more accurate upper bound probably lies at 30%, while for emergency room populations the figure may be 45% or more.

Evidence is accumulating that alcoholics represent one element in the group of high cost users of health care in North America. This cost escalation appears to operate through the mechanisms of:

a) increased length of stay, as much as 45% longer than for non-problem drinkers.
b) Repeated Hospitalization for the Same Disease (RHSDs) which, in a major study of six U.S. hospital populations, occurred for an average of two-thirds of the high-cost patients compared with about one-seventh of the low-cost patients.
c) a prominent grouping of chronic disorders in addition to the abusive use of alcohol (cancer, congenital defects, chronic-degenerative vascular disease, for example) which also led to elevated frequencies of RHSDs, as did other harmful personal habits and unexpected complications associated with treatment.

The estimated costs of alcohol abuse to society are substantial. Recent calculations indicate that

a) for the U.S., the total costs of alcohol abuse reached $116.67 billion in 1983. Expenditures for treatment and support amounted to $14.87 billion (12.7%) of the total.
b) for Canada, alcohol abuse generated social costs of $5.28 billion in 1981. Nearly two-thirds (64%) of the total was accounted for by the combination of excess health care costs ($2.01 billion) and social welfare costs ($1.39 billion).

The rationale for intervening with alcohol abusers is supported by the research into the cost-effectiveness of treatment. For example, various studies that monitored patients and families involved in alcoholism treatment have documented statistically and socially significant improvements in the areas of utilization of medical care, expenditures for health services, sick days accumulated, and accident benefits paid to workers.

Screening/Assessment of Patients who Abuse Alcohol

Screening/assessment, forms of secondary prevention, demonstrate their validity and value by providing the physician with the data needed to make a *differential diagnosis* identifying alcohol abuse as the main or co-factor in the condition for which the patient is seeking treatment. Screening programs should produce only very low rates of misclassified cases (i.e., *false positives* and *false negatives*).

There are various approaches to screening and assessment which derive from different models of alcoholism: medical, psychological, behavior modification, social, Alcoholics Anonymous, and multivariate. They also range in complexity from *brief screenings*, with a minimal number of measures, to *differential assessments*, with multiple measures which yield comprehensive data on the patient's physical health, psychological and social functioning.

All of these screening/assessment procedures address three basic concerns:

a) What are the most important variables to assess?
b) How can one measure these variables optimally?
c) What are effective strategies for using this information in making treatment decisions?

Assessment need not occur in hospital; the physician may make a diagnosis suspecting alcohol abuse then refer the patient to a specialized addictions agency for detailed evaluation.

The assessments that do take place in hospitals are usually based on the medical model, though often including elements of the psychosocial approaches.

Regarding point (a) above, the selection-of-variables concern, the main issue centers on defining the variables operationally so that they are both *sensitive* and *specific* for the disorders of alcoholism.

Generally, the measurement-of-variables aspect is carried out in hospital settings through some combination of *questioning-interviewing, laboratory tests, and clinical observations*.

In questioning-interviewing, assessment data are most frequently obtained *directly*, i.e., through an interviewer or patient-administered instrument eliciting information on patients' use of intoxicants and the state of their life adjustment. With instruments such as the CAGE, MAST, and MALT, for example, a test result above some criterion score is taken to indicate alcoholism or alcohol abuse.

The primary issues that arise with the use of such questionnaires concern their *validity* and *reliability*, the selective underreporting of consumption, and the general vulnerability of self-report data to biases stemming from different *response styles*. However, the validation research indicates that carefully designed and executed tests

yield data of acceptable validity, especially when supported by information from official records, close others, and appropriate laboratory tests.

Various laboratory tests detect alterations in patients' metabolic functioning and blood chemistry associated with acute ingestion of ethanol or chronic heavy drinking. Biochemical marker tests have demonstrated moderate-to-high specificity for alcoholism, especially at an advanced stage, but only low sensitivity, thus generally yielding unacceptably large numbers of false negatives. Use of a trauma scale, for example, can improve sensitivity of screening, and computer analysis of data from multiple tests shows promise as a means to enhance their power.

Direct observation by hospital staff for signs and symptoms of alcohol abuse among patients is also important but, to be of sufficient scale to be effective, practitioners must collectively have a "high index of suspicion" for addictive illness.

Mobilizing Hospital Staff to Screen for Alcoholism

A point raised repeatedly in the literature maintains that doctors and nurses have neglected case-finding for alcoholism and drug abuse among their patients. It is said that these health professionals focus on the secondary complications while ignoring the underlying alcohol problems and psychosocial entanglements. Alcoholism is likely to be diagnosed only when the patient conforms to the alcoholic stereotype.

Reasons offered in explanation are that

a) physicians and nurses don't know about alcoholism.
b) they have negative attitudes toward alcoholics.
c) institutional factors conspire against patients with abuse problems.

Surveys and other research conducted with health care professionals generally support these contentions, with most analysts identifying the medical education provided to doctors and nurses as the major weakness.

The main criticisms are that medical schools offer *too few* courses in addictions, both as core courses or electives, and give them *too low* priority. Other identified inadequacies include

a) lack of faculty members and hospital residents with a special interest in substance abuse who could expand the knowledge base and promote the area among students.
b) underfunding of alcoholism research in medical schools and hospitals.
c) limited clinical resources and few affiliated treatment programs through which medical students can get needed clinical experience.

For the most part, research has supported the allegations of a minimal focus on alcohol-related topics in standard medical education. Recent surveys of Canadian and U.S. medical schools show that the required hours of substance-abuse teaching accounts for only a small proportion—about 0.5%—of the total required teaching hours at these institutions.

Physicians have been described as knowing little and caring less about addictions, as cynically regarding alcoholics as "passive, aimless, and ultimately hopeless." However, to take a balanced view of the matter, the alcoholism field presents an unscientific image that has hurt its credibility in the medical arena. In addition, many of its practitioners have actively sought to isolate the field from psychiatry and other medical specialties.

Various remedies have been proposed to facilitate medical students' introduction to addictions topics, including

- expanding the quantity and quality of core courses and electives in medical school curricula.
- emphasizing that alcoholism is a behavioral, social, and biological problem.
- teaching proper assessment techniques.
- providing opportunities for clinical experience and exposure to recovering

alcoholics.
- increasing funding to stimulate the interest of teachers and researchers in the addictions field.

In terms of assisting doctors and nurses, it has been suggested that
- they be provided with more information on the prevalence of alcohol abuse among inpatients.
- training programs be organized which focus on the clinical management of addictive disorders.
- field trips to treatment facilities and liaison with community agencies and A.A. be undertaken.
- addictions agencies in the community actively promote their services to the medical community and facilitate referrals from physicians.
- addictions topics should become more salient elements in the routine flow of communications in hospitals.
- money and other benefits be used to encourage medical personnel to work with patients having substance abuse problems.
- where feasible, interdisciplinary teams of doctors, nurses, and social or addictions workers be set up to cooperate in the various tasks of detecting substance abusers and diverting them into suitable treatment.

The Hospital as a Point of Entry into Treatment

Intervening with patients during their hospital stay can be timely because:
- medical and other crises usually weaken the individual's defenses and denial systems.
- this leaves the patient more vulnerable to confrontation, open to counselling, and motivated to change.
- hospitals offer a protective, structured environment.
- medical and ancillary services are nearby if needed.
- medical staff can provide auditing and evaluation of treatment techniques.
- hospitals can serve as important entry points to specialized assessment, *differential treatment planning*, and efforts to match patients to the most suitable form of treatment.

Once their physical condition has been stabilized, few patients require a longer stay in hospital to treat their addiction. Extended treatment appears to be needed by only those 5% to 15% of alcohol-abusing patients who have severe concurrent medical or psychiatric illness, or who require a highly structured environment and thus cannot be safely detoxified outside of hospital.

The *high cost and complexity* associated with establishing and staffing hospital-based addiction treatment services represent major disadvantages.

Experimentation in program design has produced a variety of programs and modalities: partial hospital treatment, free-standing inpatient treatment centers, intermediate care facilities, nonmedical social setting detoxification, outpatient detoxification, outpatient counselling, and brief counselling.

Follow-up research shows that both inpatient and outpatient approaches yield about equivalent success/improvement rates in terms of helping patients to become abstinent or to reduce the severity of their problems. Given the cost-intensive nature of hospital care, early detection and rapid diversion of substance-abusing patients into outpatient-oriented treatment would appear to be the cost-effective choice in the majority of cases.

A number of authors point to an emerging medical approach to addictive illness, one that emphasizes greater interaction between medical staff and patients, coordinated treatment planning, continuing education of staff, and the importance of continuity of care.

Conclusions

The evidence from the literature supports the conclusions that

a) as high as 30% or more of patients among acute care hospital populations in Canada have medical problems complicated by alcohol.
b) medical personnel have concerned themselves with the secondary complications of alcohol abuse while paying little attention to the primary addictive disorder.
c) alcohol abusers consume a disproportionate amount of health care resources, a pattern of high cost utilization which can be reduced through intervention and treatment.
d) negative social attitudes toward addictions and a narrow educational focus on physical effects have been important factors in hampering medical practitioners in the early diagnosis and effective clinical management of patients who abuse alcohol or other drugs.
e) further efforts and resources are required to broaden the addictions component in medical education and to detect and divert patients with abuse complications.

However, only a small minority of such patients require an extended stay in hospital to treat their addictive disorders once their acute medical problems have been addressed. In addition, hospital-based, inpatient programs are far more costly to operate than are the various outpatient programs and offer no corresponding superiority in efficacy. These considerations provide strong support for the diversion of patients with abuse complications to community-based addictions services for assessment, treatment, and aftercare.

2 Introduction

2.1 Topic Outline

Over recent years, addictions and other health professionals in Canada and the U.S. have argued with increasing vigor that the medical authorities have largely ignored the topic of systematically addressing the chemical dependency problems of patients in acute care hospitals (Blume, 1983; Lewis and Gordon, 1983; Paredes, 1982; Rabinowitz, 1983; Seixas, 1982). A major demand is that identification of alcoholic or drug-abusing patients and their diversion to suitable treatment be made a priority. Some of the strongest voices on this matter belong to private operators who wish to supply or manage addictions services on a for-profit basis (Synenko, 1984).

Examination of this apparent need occupies the present paper. Although the discussion will apply broadly to patients who experience substance abuse problems, it will center on *alcohol abuse*.[1]

The paper thus includes within its scope of interest all patients hospitalized with a primary or secondary diagnosis of alcoholism, but *focuses specifically on those patients who receive treatment for the secondary complications of alcoholism or alcohol abuse while their underlying problems with ethanol remain undetected and untreated.*

The argument that these patients should be reached extends beyond humanitarian concern; it rests on the premises

a) that hospitals in Alberta and elsewhere in North America contain large numbers of patients with alcohol abuse problems (McIntosh, 1982).
b) that, traditionally, medical staff have devoted more energy to diagnosing and treating secondary physical complications with this subgroup, and less effort to addressing their primary illness of alcoholism (Kinney et al., 1984; Rabinowitz, 1983).
c) that such an approach provides immediate relief and may restore patients' physical functioning but, in the long-term, many will experience increasingly serious health problems which will require repeated hospitalization at growing expense to the health care system (Paredes, 1982; Synenko, 1984; Zook and Moore, 1980).
d) in conclusion, that there should be more effort to identify alcohol abusers in hospital settings and to divert them into appropriate kinds of treatment, thereby reducing the personal and social costs associated with alcoholism (The Alcoholism Report, 1984a, 1984b; Saxe et al., 1983).

2.2 Objectives

Major objectives of the paper are

a) to assess this argument and review the major issues in the context of the available evidence.
b) to extend the Alberta Alcohol and Drug Abuse Commission's perspective on this matter.
c) to assist in the development of a conceptual framework for possible Commission policy initiatives to improve addictions treatment services for hospital inpatients in Alberta.

The review begins by noting some ambiguities in establishing alcohol's role in the etiology of various disorders, the prevalence of alcohol-abusing patients in hospital populations, as well as their impact on the economics of health care.

[1] McGee (1979) offers the valuable reminder that, while there are many similarities between alcohol and other forms of drug abuse, important differences also exist and treatment programs should be designed to accommodate patients with different characteristics and needs. Complicating the picture somewhat are patients with dual and polydrug dependencies.

3 Consequences to Health Care of Alcohol Abuse

3.1 Alcoholism and Alcohol-Related Disorders

Case Identification

For any attempt to appraise the costs of alcohol abuse within the health care system to be meaningful, the investigators must apply valid and reliable clinical criteria for counting alcohol-related cases (e.g., patients, admissions, disorders). Thus, medical personnel need to accurately evaluate and diagnose a patient's condition when he or she enters hospital to distinguish those cases in which alcohol is causally related from those in which it is not. This is a crucial point because consistent, accurate identification of patients with alcoholism has been notoriously difficult to achieve in most hospitals (Bednarek et al., 1982; Lewis and Gordon, 1983; Rabinowitz, 1983).

Many factors contribute to reduced casefinding. The noteworthy one in terms of this section is the point that diseases are known and diagnosed by their causes and manifestations (Goodwin, 1981). However, alcohol is capable of producing protean forms of injury to many of the drinker's organs and tissues and, frequently, the connections between the disorder and the drug remain unclear (Goodwin, 1981; Holt, et al., 1981).

Physicians' ability to diagnose incisively is further hampered by the complexity of alcohol's pathogenic effects and by the remaining gaps in scientific knowledge about the etiology of alcoholism (Eckardt et al., 1981; Kinney and Leaton, 1982; Ritchie, 1980). In their extensive summary of the health consequences of chronic heavy drinking, Eckardt et al. reiterate the current assessment of the evidence as indicating "that alcoholism may be a multifactorial genetically influenced disorder in [which] ... social and environmental influences play significant roles" (1981:653).

Although alcoholism begins as a behavioral disorder, it usually follows a fluctuating and progressive course of five to twenty years duration in which physical pathologies become increasingly evident (Schuckit, 1979). Thus, it is highly probable that persons who maintain a style of excessive consumption[2] will eventually be hospitalized. However, the hospitalization experience of alcoholics indicates that, unless the case is particularly clear-cut, the chances are not nearly as high that the "disease" of alcoholism will be diagnosed or that assessment and suitable treatment will be initiated for the addiction problem. It is much more likely that the health problem will be the primary focus and that it will be dealt with in isolation from the alcohol abuse (Goodwin, 1981; McGee, 1979; Rabinowitz, 1983).

The Medical Model

The view of alcoholism as an illness goes back 200 years or more in North American medical circles. Within the last 50 years, such official bodies as the American Medical Association have designated alcoholism as a "disease" requiring treatment (American Medical Association, 1973), and recognition of alcohol as a causal factor in numerous medical conditions is reflected in the categories of morbidity and mortality of the International Classification of Diseases.

In this medical model, the core disability of alcoholism is represented by the *alcohol dependence syndrome (ADS)*, one of a family of dependence syndromes. The

[2] Skinner et al. (1984a:3-4) report that the apparent threshold for experiencing significantly elevated risk of developing liver cirrhosis and other problems occurs when consumption averages 60 g or more of ethanol/day during the preceding 6 months or longer. This is an amount equivalent to approximately 4 standard drinks where one standard drink about equals 12 oz. (340 ml) of beer (5% ethanol), one-and-one-half oz. (43 ml) of distilled spirits (40% ethanol), or 5 oz. (142 ml) of table wine (11% ethanol), or 3 oz. (85 ml) of sherry, port, or vermouth (18% ethanol).

ADS typically begins with the development of psychic dependence on alcohol's pharmacological effects and progresses to physical dependence, as indicated chiefly by impaired control over drinking and onset of withdrawal following cessation of drinking (Madden, 1979; Pattison and Kaufman, 1982).

In a WHO paper on this topic, Edwards et al. (1977:7) emphasize that "the syndrome is multifactorial and exists in degrees." In other words, the ADS does not have a single consistent presentation, but has variable manifestations which reflect cultural, environmental, and individual differences.

One of the major problems with the traditional medical model is its narrowness; it best describes alcoholism in its advanced stages (Pattison and Kaufman, 1982). Other objections to the model have been raised, among them the important points that not all long-term excessive drinkers need show evidence of tolerance and dependence, and that others migrate into and out of the alcohol-dependent population by moderating their consumption or abstaining altogether for varying periods of time (Keller, 1976; Madden, 1979). In addition, no cut-off point has been defined that would accurately separate people with ADS from those with other kinds of alcohol-related problems (Edwards et al., 1977).

A Broader "Problems" Perspective

Common experience and clinical observation support the adoption of a broader view on the basis of evidence that heavier consumers of alcohol frequently develop an array of problems and disabilities, besides dependence on ethanol, in the areas of their psychological well-being, family and community relations, and occupational stability (Edwards et al., 1977; Moser, 1980). Thus, the supplementary concept of *alcohol abuse* came into the addictions vocabulary to refer to this commonly observed constellation of problems and disabilities that are in some way or other "alcohol-related" and which frequently cluster around the alcohol dependence syndrome.

Edwards et al. make the pertinent comment that "all health care agencies and health professionals need to be aware that there exists a basic disability, the alcohol dependence syndrome, and also a range of alcohol-related disabilities which may precede dependence, may accompany it, or may exist without it" (1977:19). Another component of this awareness is a sensitivity for important interacting factors located within the individual and the environment.

In 1952, the World Health Organization incorporated this perspective into its definition of "alcoholics."[3] Similarly, the recently refined Diagnostic and Statistical Manual (DSM III) now sets out diagnostic criteria for "alcohol dependence" and "alcohol abuse" under the general heading of "substance abuse disorders" (American Psychiatric Association, 1980).

This more inclusive "abuse" concept fits better with our observations of alcoholics but, from the definitional and measurement point of view, difficulties remain concerning which disabilities to include and which to exclude, especially on a case-by-case basis. What must the nature, severity, and frequency of problems be to have them validly signify alcohol abuse (Goodwin, 1981; Heckler, 1983)? Clearly, no one definition will suffice for all purposes and, apart from extreme cases, there will always be degrees of uncertainty in efforts to causally link alcohol to disease and disability.[4]

In the practical endeavor to count cases, these difficulties contribute to a lower rate of alcohol-related diagnoses, to more misdiagnoses, and to a reduction in the efficacy of early intervention.

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[3] Excessive drinkers whose dependence upon alcohol has attained such a degree that it shows a noticeable mental disturbance or an interference with their bodily or mental health, their interpersonal relations, and their smooth social and economic functioning or who show the prodromal signs of such developments. They therefore require treatment (quoted in Moser, 1980:1).

[4] Although it is important to be aware of the differences in meaning between "alcohol abuse" and "alcoholism," the two terms are often used interchangeably for discussion purposes. The present paper will also follow this practise.

Assessing the Effects of Alcohol in Health Disorders

A person entering an acute care hospital could conceivably be suffering the adverse effects of alcohol in several dimensions of life-functioning. In the health area alone, a vast literature describes the physically damaging effects of alcohol on the digestive system and on the cardiovascular, hematological, endocrine, musculoskeletal, neurologic and psychoemotional systems (Brody and Mills, 1978; Eckardt et al., 1981; Kinney and Leaton, 1982; Ritchie, 1980).

Alcohol operates in a variety of often subtle ways in the development of pathologies in various sites throughout the body. The bio-medical evidence indicates that the drug may have

a) *direct effects* (as in the etiology of cirrhosis, pancreatitis, and certain kinds of heart disorders).
b) *interactive effects* (with tobacco, for instance, in the development of chronic obstructive pulmonary diseases and cancers of the mouth and throat).
c) *contributing effects* (impairment of judgement and coordination that results in accidental injury, for example).

The influences of alcohol may also be confounded with the effects of poor hygiene and nutrition, lack of physical exercise, general neglect, and pre-existing affective disorders (Heckler, 1983; O'Connell, 1984; Schuckit, 1979). Thus, in the event of accidental injury, family breakdown, or social isolation, for example, alcohol is not a *necessary* cause, but one of many *sufficient* causes capable of "triggering" these events.

The practitioner interested in thoroughly evaluating a patient's use of alcohol is alert for the signs and symptoms of the alcohol dependence syndrome and also gathers data on the individual's psychoemotional health and adequacy of social functioning. The effort should be to go beyond a "yes/no" determination of alcohol involvement to an assessment of the *degree* of alcohol's effects in the patient's presenting complaints (Edwards et al., 1977). Unfortunately, there are no simple tests available that determine "alcohol-relatedness" with a high degree of precision. Noting these complications underscores the diagnostician's challenge; it is a complex matter to accurately establish alcohol's status as a primary, secondary, contributing, or relevant agent in the diagnosis of a medical disorder or in assessing disabilities in a patient's life-functioning. Nevertheless, sensitivity of this sort is a requirement for effective early intervention (Heckler, 1983).

3.2 Prevalence of Alcohol-Related Problems Among Inpatients

If alcohol frequently plays some role in causing hospitalizations, a main question that follows is, "How many patients are there with alcohol-related problems in hospital populations?"

Prevalence Estimates

The estimates contained in the epidemiological literature vary widely. On the *broad* measure of *alcohol-related admissions* to general medical and surgical wards, the published estimates for males fall in the 10% to 60% range, with some studies giving figures below or above these bounds (Leckman, et al., 1984; McIntosh, 1982; Saxe et al., 1983; Stark and Nichols, 1977).

However, measures of varying scope are used and the figures diverge in studies for different hospitals in different locations with different types of patients. For example, hospital surveys in Australia suggest that between 10% and 20% of acute hospital admissions derived from alcohol consumption at risk levels (O'Neill, 1983). In Scotland, evaluations of emergency admissions to medical wards in a Glasgow hospital estimated that alcohol was directly or indirectly involved with 19% of the males and 15.8% of the

females admitted (McIntosh, 1982). In the U.S.A., one study found that the prevalence of a wide range of alcohol-related problems among patients admitted to all wards of a large hospital was 9% (15.5% for males and 5% for females) (Stark and Nichols, 1977), while another study at Johns Hopkins Hospital yielded a figure of about 20% for admissions resulting directly from alcoholism (McIntosh, 1982). In Canada, studies at four Winnipeg hospitals indicate that the proportion of overall admissions related to alcohol abuse ranged from 6.4% to 14.9% (McIntosh, 1982). A one-day census of the general hospital population in Kingston, Ontario yielded evidence of alcohol or drug abuse with 11% of the patients (Powell, 1981).

It might be helpful to consider a range of values for the prevalence of alcohol-related admissions. Summarizing their reading of hospital studies, Morse and Hurt (1979) report the following ranges: 3.7% to 9.9% for women and 15.3% to 29% for men. One Canadian reviewer maintains that "probably only between 7% to 15% of patients in General Hospitals ... have substantial alcohol-related problems" (Osborne, 1984:1105).

Evidence of underdiagnosing of disorders not obviously connected with excessive use of alcohol (McGee, 1979) provides grounds for accepting 30% as a more realistic upper bound for many general ward populations while, for emergency room patients, the corresponding figure may be as high as 45% or more (Leckman et al., 1984; Paredes, 1982; Saxe et al., 1983; Stark and Nichols, 1977).

Complications

It is prudent to view the above as rough estimates and to recognize the difficulties involved in obtaining more refined figures.

In a recent review, McIntosh (1982) collated the results of 31 publications on alcohol-related disabilities in general hospital patients and discovered that the prevalence figures, some of which are cited above, were highly variable and difficult to compare. He suggests that this body of inconsistent findings has arisen for several reasons.

1. Researchers frequently fail to specify whether the alcohol-related problems identified were the *causes* for admission or whether they were detected *after* patients were admitted.

2. The research lacks consistency in terms of the kind of alcohol-related disorders being counted. This involves issues of definition and choice of measures. It stems in part from the fact that the etiological significance of alcohol in many medical conditions remains unclear. In studies confined to counting those disorders more strongly correlated with overdrinking (e.g., alcohol dependence syndrome, liver cirrhosis, alcoholic psychosis) the estimates will be lower than in those investigations that consider a broader spectrum of alcohol-related problems (e.g., disabilities in family, work, and community functioning).

Thus, Canadian hospital statistics, reflecting the more obviously alcohol-induced medical conditions, indicate that only 1.3% of hospital separations for all diagnostic categories between 1974 and 1978 were *directly* linked to alcohol (Addiction Research Foundation, 1983).[5] The proportion of all first admissions to inpatient psychiatric facilities in Canada with diagnoses of alcoholic disorders ranged from 16.9% to 18.6% for the years 1974 to 1978 (Addiction Research Foundation, 1983).

3. Problems emerge in distinguishing different kinds of "alcohol-relatedness." The few studies that used measures of wide scope included, in addition to physical ailments exacerbated by alcohol, cases such as persons injured by impaired drivers and children abused or neglected by alcoholic parents.

4. Administrative and methodological factors often confound the research. In some studies, it is not clear whether patients or admissions were counted. Further, the representativeness of the hospital sample relative to others in the region/country,

[5] Nevertheless, a substantial number of separations from general hospitals for alcohol-related disorders are recorded. The Working Group on Alcohol Statistics (1984:70-71) reports that these separations totaled 28,732 for Canada in 1980-81, up 9% from the 1972 figure of 26,432. The corresponding figure for separations of this type from mental hospitals was 4,698 in 1980-81, a 48% reduction from the 1972 total of 8,966.

whether or not the sample included patients from all wards, and the manner in which the study dealt with early terminators from treatment all affect the size of the prevalence estimates and their generalizability.

McIntosh concludes that we do not know "true" prevalence of alcohol-related disorders in general hospital patients or, for that matter, the confidence limits of the estimated proportions. Unfortunately, this rather academic-sounding issue has practical implications for, as McIntosh points out, "there is a likelihood, if the size of the problem is not known, that it is not possible to estimate the resources that are required to deal with it" (1982:636).

Although the literature provides only rough estimates of the numbers of acute care patients affected by substance abuse, it is still reasonable to conclude that the proportion of such cases in hospital populations equals and probably often exceeds the estimated 5% of Canada's adult drinkers believed to be alcohol-dependent or the 10% of drinkers who disclose, as in the 1981 Canada Health Survey, that they have recently experienced an alcohol-related problem (Working Group on Alcohol Statistics, 1984).

These findings lend empirical support to the argument that methods be considered for identifying hospital inpatients with alcohol abuse problems and diverting them into assessment and treatment, as required.

3.3 Economic Impacts on the Health Care System

It is pertinent to ask questions about the costs of alcohol abuse to the health care system and, more globally, to society.

A growing body of evidence indicates that a greater than proportionate amount of health care resources goes toward the treatment of alcoholics because

a) ethanol is implicated in a broad array of disorders and injuries requiring medical attention, especially late in the course of alcoholism.
b) such patients have multiple hospitalizations.
c) their hospital stays are longer, i.e., they accumulate more patient days than other categories of patients.

Further to point (c), one U.S. study found that problem drinkers had an *average* length of stay of 11.2 days compared with 7.7 days for nonproblem drinkers, or about 45% longer (Berry and Boland, 1977). It has also been estimated that alcohol-abusing patients account for between 20% and 25% of all general hospital bed days (Berry and Boland, 1977).

In Canada, the data for separations of patients with alcohol-related disorders from general hospitals show minimal fluctuations in the *median* length of stay for the period 1972 to 1981. The median length of stay in 1980-81 was six days (Working Group on Alcohol Statistics, 1984).

Researchers caution, however, that the findings in this area remain equivocal and point out that the variables of nature and severity of the disease, patient characteristics, and environmental conditions also affect duration of stay (McIntosh, 1979).

Nevertheless, patients with alcohol-related disorders are emerging as an important element in the group of high cost users of health care in North America.

High Cost Users of Health Care

One of the more comprehensive efforts to develop a profile of high-cost users was undertaken recently by Zook and associates (Zook and Moore, 1980; Zook, Savickis, and Moore, 1980). These researchers analyzed patient-generated costs as indicated by 2,238 medical records which were randomly selected from 42,880 discharges for 1976 from six hospital populations in Massachusetts. Their findings highlight

a) a concentration of *repeated hospitalizations for the same disease (RHSDs) (60%* of all hospital charges) at a greater average cost per admission than

nonrepeated hospitalizations (mean of $3,111 versus $2,040 in 1976 dollars).

b) an extreme skew in the distribution of service billings among patients. Within the six hospital populations studied, the *most* costly 20% of patients consumed between 59% and 66% of the billings while the *least* costly 50% of patients consumed from 8% to 14% of the billings.

c) a distinctive pattern in which an average of two-thirds of the high-cost 20% of patients had RHSDs in one calendar year compared to about one-seventh of the low-cost 80% of patients. The analysis also showed that one-third of the high-cost group had at least five hospitalizations for the same disease in previous years, which was true for only one-tenth of the low-cost patients.

d) a connection implicating 6 of 19 major diagnostic categories among two-thirds of the most expensive 20% group (while so implicating only one-third of the least expensive 80% group). The six included: "alcoholism and its effects, benign inflammatory bowel disease, cancer, congenital defects, renal failure, and chronic degenerative vascular disease..." (Zook and Moore, 1980:999). In an extension of the analysis with these costly patients, medical records covering the previous ten years were examined. This review showed that alcohol-related disorders along with renal failure, congenital defects, and peripheral vascular disease were the four diagnostic categories that appeared with a significantly greater frequency.

e) the major contribution to more frequent readmission and greater use of resources among high-cost patients by "potentially harmful personal habits" (alcoholism, smoking, and obesity) and unexpected complications during treatment and after discharge from the hospital.

A major conclusion of this research was that alcohol abuse was associated significantly with the extensive utilization of health care resources by a small group of patients, although alcohol abuse was not the only factor (see point (e) above). Since the sample of billings was large and drawn from a cross-section of patient populations, there are further grounds for believing that similar utilization patterns would be found in other North American hospitals.

Costs of Alcohol Abuse

If patients with disorders complicated by alcohol make heavy use of medical resources, it would be helpful to know the *excess* costs to the health care system attributable to the consumption of alcohol. The research on this topic, which represents one component in a broader accounting of the costs of alcohol abuse to the economy, is in the early stages of development but rough measures are available.

Following one of the initial reviews for the U.S. (Berry and Boland, 1977), the total economic cost of alcohol abuse for the nation in 1977 was estimated to be $42.75 billion, of which $12.74 billion was represented by health and medical costs (Bottom Line, 1977). Of that latter figure, hospital care costs contributed $8.4 billion or 19.9% of the total estimated costs of alcohol abuse.

Researchers for the U.S. Alcohol, Drug Abuse, and Mental Health Administration calculated that the national costs of alcohol abuse had reached $89.53 billion in 1980, of which total rehabilitation costs came to $10.47 billion or 11.7% (The Alcoholism Report, 1984a). Three years later, the study was updated to reflect inflation and population growth. The 1983 figure totaled $116.67 billion. Expenditures for treatment and support in the country amounted to $14.87 billion or 12.7% of the total (The Alcoholism Report, 1984a).

In Canada, the subject of the costs of alcohol abuse has not been as extensively researched. Calculations for Ontario indicate that alcoholism was implicated in about 10% of the $890 million expended by the province's Hospital Services Commission through the health care system and 15% of the $106.7 million expended through the mental health system in 1971 (Anderson, 1975).

More recently, the Addiction Research Foundation of Ontario (1985) calculated that alcohol-related social costs totaled $5.28 billion for Canada in 1981. By this reckoning,

excess health care costs due to alcohol accounted for 38% ($2.01 billion) of the total and social welfare costs contributed 26% ($1.39 billion).

Considerable work still needs to be done with these studies to refine their methodology and to develop more sensitive indicators of the hospitalization experience of patients who abuse alcohol (McIntosh, 1979). The published estimates are variable and tend to be conservative, but this is to be expected given that the alcohol-relatedness of many diseases remains obscure, the difficulty of placing dollar values on such factors as indirect psychological costs, and the absence of a definitive taxonomy of alcohol-induced disorders for researchers to apply (Berry and Boland, 1977; Saxe et al., 1983).

What the research clearly illustrates is that, by any accounting, the dollar and human losses borne by society through alcohol abuse are indeed substantial. And a major portion of the costs—at least one-tenth—derives from the provision of treatment services and supplies to restore the physical and behavioral functioning of persons with alcohol-abuse problems.

Economic Viability of Treatment

Questions arise whether alcoholism treatment is effective and successful enough in returning people to productive life to warrant the money needed to establish, staff, and operate them. These matters are typically addressed in cost-effectiveness and cost-benefit analyses.

Investigations of this sort suffer from many of the design and conceptual problems that limit the precision of the more general cost-accounting studies in the field of alcohol abuse. However, the accumulating evidence indicates that alcohol treatment is cost beneficial.

Saxe et al. (1983) highlight the findings of a 1979 review of twelve studies into the results of alcoholism treatment programs operated over several years within private companies and public agencies in the U.S. and Canada. Though weakened by methodological shortcomings (e.g., some didn't use control groups) and measurement (e.g., incomplete accounting of medical care contact outside of the study), this set of studies provided suggestive evidence of significant reductions in the level of medical care use and expenditures following treatment for alcoholism. In addition, a median reduction in sick days and accident benefits of 40% was detected.

More recent and better designed studies confirm that investment in alcoholism treatment yields net savings to the health care system. For example, The Alcoholism Report (1984b) summarizes preliminary findings of a large-scale investigation profiling the costs associated with providing alcoholism treatment to a group of U.S. federal government workers insured under a health insurance program. The investigators first identified some 2,900 persons who had submitted claims for alcoholism treatment from a pool of 19 million claims processed by the health plan between 1980 and 1983. They then grouped these claimants into a total of 1,600 families and their utilization data was compared with information from a random sample of 3,600 families without a record of seeking alcoholism treatment.

Major findings include:

a) For individuals receiving alcoholism treatment, a major reduction in health care costs was observed: at 2 years preadmission, cost averaged $150/month; for 6 months preadmission, cost averaged $800/month; for 6 months following discharge, cost averaged $294/month[a]; at 3 years postdischarge, cost averaged $190/month.
b) The two-group comparison showed that expenditures for health services by alcoholic families averaged $210 a month per person, more than twice the figure for nonalcoholic families ($107/month/person).
c) The alcohol abuse treatment utilized was heavily hospital-based; fully 82% of all admissions for treatment occurred in general hospitals. Although specific treatment outcomes are not described, there appeared to be minimal

[a] This does not include the cost of alcoholism treatment, which averaged $3,100 per person.

relapse within the group. Only one admission for treatment was recorded in 82% of the cases, suggesting that this population was highly amenable to treatment.

Taken together, the foregoing sections support contentions that the issue of substance abuse has not been generally considered a priority item by the the medical establishments in the U.S. and Canada. The evidence reviewed indicates that a substantial proportion of patients in general hospital settings have health disorders complicated by alcohol, that these disorders often go undetected, and that such patients are part of a group which makes extensive use of health care resources. The cost to Canada of alcohol abuse runs into several billion dollars, an important element of which are the funds expended for treatment. However, these expenditures are more than offset by the significant improvements in functioning that can be expected to follow completion of treatment. Therefore, efforts to identify and intervene with hospital inpatients are warranted on both humanitarian and cost-benefit grounds. This has the potential of not only directly treating erstwhile "hidden" alcoholics, but also of improving the health care delivery system and thereby indirectly benefiting the general population.

4 Screening/Assessment of Patients Who Abuse Alcohol

A first step in addressing chemical dependency problems in acute care hospitals involves directing patients through a screening process to identify those whose physical disorders are associated with alcohol or drug abuse or those who are at higher risk of developing such complications (Foundation for Health Care Evaluation, 1982; Murray, 1974). Although such screenings may be part of the admitting procedures to evaluate all incoming patients, this certainly need not always be the case; nor is it essential that physicians be deeply involved in screening/assessment activities. For example, gross screening may be conducted with selected patients only and, after making an initial determination of their alcohol abuse status, the physician could refer them to other practitioners, working either within the hospital or in outside agencies, for more detailed assessment and possible treatment.

Ultimately, screening efforts demonstrate their validity and value by helping the clinician make a *differential diagnosis*, the usefulness of which "lies in the description of a consistently intercorrelated set of symptoms (i.e., a syndrome) with implications for prognosis, treatment, and prevention" (Miller, 1976:649).

This is a crucial step because inaccurate diagnosis and treatment to relieve symptoms (of acute gastritis, for example) may postpone the patient's recovery and require repeated visits to hospital. Life-threatening misadventures may also occur, arising, for example, from failure to recognize DT's in a patient being treated for pneumonia (Kissin, 1975). When a patient's alcohol or drug dependency remains hidden, sedative-hypnotic drugs may be prescribed which could reinforce the addiction (Bissell, 1975).

The literature indicates that screening for alcoholics in hospital settings has been undertaken, though usually on a limited basis or for research purposes. Some of these efforts are noted below.

4.1 A Context for Screening

Screening hospital inpatients to identify those with alcohol-abuse problems is no different, in principle, than other screening programs undertaken as public health measures to detect subclinical cases of tuberculosis or hypertension, for example. These various efforts are forms of secondary prevention (Murray, 1974; Skinner, 1981).

Among the many criteria that screening programs should meet (Murray, 1974), they should produce acceptably low rates of misclassified cases: *false positives*, i.e., persons designated as having the disorder when they do not; and *false negatives*, i.e., persons designated as not having the disorder when they in fact do. Defining an "acceptably low rate" is a matter of judgement, involving considerations of both the morality and the efficiency of the intervention. It is important, of course, that such screening provides appropriate data within budgetary limits (Holt et al., 1981; Knox, 1982; Morgan, 1977).

Other important aspects of this context for screening should be noted. A crucial point, which connects to the earlier discussion on definitions, concerns the fact that what one considers of diagnostic significance for the disorder will be heavily conditioned by one's preferred conception or model of alcoholism. Thus it follows, as Skinner reports, that there are numerous approaches to assessment: "(1) medical, (2) behavior modification, (3) psychological, (4) social, (5) Alcoholics Anonymous, and (6) multivariate" (1981:320). With the fading popularity of the unitary concept of alcoholism,

less emphasis is being placed on designating a person as an alcoholic (i.e., labelling the person) (Skinner, 1981) while more attention is being given to identifying diagnostically significant alterations in his or her behavioral, subjective, and psychobiological states (Edwards et al., 1977).

Notwithstanding the above, screening programs need not be highly complex. They may be limited to *brief screenings* that incorporate a small number of key indicators of alcohol-related problems or a few direct questions on drinking history. However, patients differ in terms of their alcohol-induced complications, stage in progression of alcohol dependence, treatment experience, and knowledge and motivation to treat their substance abuse problems. Thus, more comprehensive screening appoaches may be required, ones that employ multiple measures in a detailed analysis of the number, nature, and degree of disabilities in all areas of the patient's functioning (Miller, 1976; Skinner, 1981). This provides the basis for *differential assessment*, through which the practitioner collects confirming evidence from several sources of specific problem areas to focus on in treatment.

Skinner adds, however, that irrespective of the screening approach adopted in a given setting, three considerations serve as an implicit framework:

1. *What are the most important variables to assess?*
2. *How can one measure these variables optimally?*
3. *What are effective strategies for using this information in making treatment decisions (1981:323)?*

The discussion below centers on questions one and two while the third question will be taken up in Chapter 5.

4.2 Important Variables

Six approaches to assessment were identified above, each of which postulate a slightly different set of important diagnostic variables. These variables derive from different assumptions about the causes and nature of alcohol abuse and dependence and, when operationally defined and measured, yield the data on which clinicians base their diagnoses and treatment decisions.

As expected for hospitals, the medical approach to screening/assessment generally prevails, though usually in combination with the psychosocial approaches. Accordingly, variables of primary interest concern quantity and frequency of alcohol intake; other drug use; physical and psychological dependence as evidenced by loss of control over drinking, tolerance, and withdrawal symptoms; blood alcohol concentration (BAC) and biochemical abnormalities; and disorders associated with alcohol use (Davis, 1977; Holt et al., 1981; Morse and Hurt, 1979; Shaw, 1981). In addition, the alcohol abuse perspective emphasizes variables that reflect possible psychosocial damage: family history of alcoholism, marriage disruption, absenteeism, impaired job performance, diminished self-esteem and life satisfaction, alcohol-related arrests, previous alcoholism treatment, etc. (Knox, 1982; Marlatt, 1981; Skinner et al., 1980).

An extensive list of variables comprises the National Council on Alcoholism's diagnostic criteria assembled in 1972 to aid in "identification of individuals at multiple levels of dependency" (National Council on Alcoholism, 1972). Consisting of 86 items regarded as major and minor criteria of alcoholism, the N.C.A. criteria were organized into two tracks: Track I, containing physical and laboratory items; and Track II, containing behavioral, psychological, and attitudinal items.

Complications

An important aspect in the selection of variables concerns the need to include those which, to the greatest extent possible, uniquely identify the syndromes of

alcoholism. Thus, the variables and their operational definitions are *sensitive*, i.e., they pinpoint the manifestations of the disorder, and *specific*, i.e., they support diagnoses of alcohol-related disorders, not pneumonia or some other syndrome. With many, however, these qualities tend to be inversely related. A highly sensitive test may not be specific; it has a low "hit rate" for alcohol dependence and abuse (Jankowski and Drum, 1977). Skinner et al. (1984a) add that while one would want a highly sensitive test during the screening phase to minimize false negatives, a test with greater specificity would be preferred for diagnostic purposes, to rule out false positives.

Another difficulty arises when, as with the N.C.A. criteria, the key diagnostic variables usually appear late in the patient's drinking career (liver damage, tolerance, severe withdrawal symptoms, for example). Thus, these items may provide positive diagnoses for older alcoholics but they lack the sensitivity to effectively identify younger drinkers with less advanced complications (Skinner et al., 1980). This poses an obvious limitation since a key objective of screening is to detect patients at an early stage, while they have the most favorable prognosis for recovery.

4.3 Measurement

Measurement of variables for assessment and diagnosis can occur through various methods: interview, test-format, rating scales, behavioral observations, biomedical measures, and unobtrusive measures (Skinner, 1981). However, in the narrower context of screening in a hospital, a comprehensive patient work-up will probably consist of some combination of questioning/interviewing, laboratory tests, and clinical observations (Fine, 1980; Skinner, 1981).

Questioning/Interviewing

Data may be gathered through *indirect* or *direct* questioning. In the indirect approach, items pertaining to such areas as chemical dependency and life adjustment are embedded within a longer inventory of questions and the subject's subscore for alcoholism is calculated. A number of scales have been derived from the MMPI (Minnesota Multi-Phasic Personality Inventory), including the forty-nine item MacAndrew Alcoholism Scale (Knox, 1982; Miller, 1976). In evaluations conducted with inpatients, the scale yielded significant differences in the mean scores of alcoholics and controls, but its accuracy of assignment was in the rather low range of 55% to 62% (Miller, 1976).

The direct approach involves interviewer, patient, or computer-administered tests, arranged in a check-list, yes/no, or open-ended format, which obtain patients' retrospective self-reports on consumption patterns, family history of dependency problems, and nature and extent of alcohol-related disabilities. Interviews can also be conducted with other informants to obtain corroborative data.

An enormous number and variety of alcohol use and alcoholism questionnaires exist for research and screening purposes. One reviewer, writing in 1970, noted that 180 questionnaires had been cited in the literature on drinking behavior (Murray, 1974). These instruments range from being short and straightforward to long and complex. They also vary considerably in their ability to identify drug-abusing subjects.

For example, Woodruff et al. (1976) describe an eighteen-item questionnaire which elicits information on a patient's own drinking or his or her assessment of the drinking of a relative or other. The items are structured into four groups and alcoholism is diagnosed when symptoms are present in two or more of four groups.

These investigators used the instrument in 1,350 interviews conducted with 500 psychiatric inpatients and 850 of their first-degree relatives. Seventy (14%) of the inpatients and 81 (9.5%) of the relatives were classified as definite or probable alcoholics. They report that fully 96% of the diagnosed alcoholics in both groups could be so classified by their agreeing with only three (of the 18) items which concerned

excessive drinking:

1. "Has your family ever objected to your drinking?"
2. "Did you ever think you drank too much in general?"
3. "Have others ever said that you drink too much in general?"

Based on these three questions, the rate of false positives in the nonalcoholic groups ranged from 9% to 11%.

Another short instrument, the CAGE, has four items:

1. "Have you ever felt you should Cut down on your drinking?"
2. "Have people Annoyed you by criticising your drinking?"
3. "Have you ever felt bad or Guilty about your drinking?"
4. "Have you ever had a drink first thing in the morning...?" (Eye-opener)

(Mayfield et al., 1974).

Mayfield and her colleagues administered the CAGE to 366 psychiatric inpatients, then compared the CAGE results for each person to the diagnoses reached by a staff multidisciplinary team. The instrument demonstrated varying sensitivity depending on the number of items used. The set of four items together correctly classified only 37% of the diagnosed alcoholics (phi correlation coefficient = .65). However, when only two items were used, correct assignment reached a respectable 81% ($r = .89$). With the two-item criterion, the rate of false positives among nonalcoholic patients was 11%.

In another validation study of the CAGE with 166 alcoholics and 68 nonalcoholic patients, over 90% of the alcoholics replied in the affirmative to two or more questions compared with 4% of the controls (Murray, 1974). Elsewhere, one researcher found that the CAGE results correlated well with alcoholism diagnoses obtained with other measures, while another investigator did not detect a strong correlation (McIntosh, 1979).

The Michigan Alcoholism Screening Test (MAST), developed by Selzer (1971), has been one of the most widely applied self-administered scales. The first version contains 25 true/false questions (weighted 1-5) which inquire about the subject's drinking patterns, problems with alcohol, and treatment experiences. Five is the cut score for a diagnosis of alcoholism. In Selzer's developmental work, the MAST scores were checked against hospital records and it was found that 98% of 116 hospitalized alcoholics had been corrrectly classified.

The scale has generally performed well in other validation studies also (Keller, 1976; Murray, 1974). For example, Murray reports that in one investigation with 400 psychiatric inpatients there was a correlation of .78 between the MAST diagnoses and the psychiatric diagnoses, with only two of 126 problem drinkers missed. Another study at a U.S. Navy hospital indicated that the MAST accurately classified 97% of the alcoholics in the alcoholism rehabilitation ward, though it produced high rates of false positives in other wards ranging from 2% to 33% (Miller, 1976).

Two shorter versions of the MAST have also been developed (Pokorny et al., 1972; Selzer et al., 1975). Their results have correlated well with the results of the longer instrument (Miller, 1976).

Other diagnostic instruments for gathering self-report data are also available, such as the Self-Administered Alcoholism Screening Test (SAST) (Swenson and Morse, 1975), screening tests developed by Mortimer et al., (1973), Woodruff et al., (1976), and Marlatt's (1981) questionnaire, "The Drinking Profile."

The trend toward increased sophistication in screening methods is reflected in the Munich Alcoholism Test (MALT), an instrument developed recently by Feuerlein et al. (1980). The MALT has two components: a seven-item physician's assessment section and a twenty-four item self-assessment section. To answer the first part, the physician utilizes information from the patient's physical examination, laboratory findings, history, and significant others. In the self-assessment part, the patient indicates whether or not

the items are true or false for him/herself in such areas as: "Drinking Behavior and Attitude Toward Drinking," "Emotional and Social Impairment," and "Somatic Complaints."

Each positive finding for the physician's section is given a weight of four and each positive response from the patient receives a weight of one. When summed, a cut score of 11 or higher indicates definite alcoholism while a score in the range of 6 to 10 means suspected alcoholism.

Feuerlein and his co-workers evaluated the instrument with 175 hospital inpatients who were divided into an alcoholic group and a nonalcoholic control group according to physicians' diagnoses. A correlation of .85 emerged between the test results and the clinical diagnoses. Of the clinically diagnosed alcoholics, 90% were correctly identified as definite alcoholics by their MALT scores, 8% were judged as suspected alcoholics, while 2% remained unidentified. At a criterion score of 11, none of the controls were misclassified as alcoholics although about 10% of them, the authors point out, reported having had some problems with alcohol.

Complications

The main issues that arise with the use of interviewer or self-administered screening questionnaires concern their *validity* and *reliability*. An extensive literature (e.g., Campbell and Stanley, 1963; Suchman, 1967; Webb et al., 1966) delves into these subjects, but it would be instructive to highlight several points here.

For diagnostic tests to be useful, they should be able to distinguish different kinds of drinkers (especially those experiencing the damaging effects of alcohol), i.e., they should have a high degree of *discriminant validity*. Such tests produce low rates of false positives and false negatives. Their results should suggest the same diagnoses as those derived from other tests, i.e., *concurrent validity*. Test items should be specific and precise enough to serve adequately as referents of the construct they were intended to measure (e.g., alcohol dependence syndrome), i.e., *construct validity*. Measures high in construct validity should provide direction for treatment decisions and further insights into the etiology of alcohol-related disorders (Marlatt, 1981; Pattison, 1981). Finally, a necessary condition for the validity of an item is its ability to produce consistent results upon repeated use, i.e., *reliability* (Suchman, 1967).

It was generally assumed that most of the data-gathering instruments used in addictions research were weak on these points. A longstanding criticism of measurements based on self-reports is that they have a variable but usually large error component related to such factors as the subject's ability to understand instructions, health status, and deficits in memory, particularly during the early phases of detoxification (Skinner, 1981). Self-report data are seen as being vulnerable to systematic biases stemming from different *response styles*: social desirability, denial, carelessness, and acquiescence. In addition, ratings and observational data are affected by rating errors, experimenter bias, and other distortions (Skinner, 1981).

Nevertheless, the self-report measures have performed acceptably well in validation research (Smart and Jarvis, 1981; Sobell et al., 1979). In his review of these studies, Marlatt (1981) notes, for example, that these investigations reveal moderate to high correlations of agreement between patients' and spouses' perceptions of the patients' drinking behaviors, especially on global measures of consumption. An observational study correlating observer tallies of number of drinks consumed by subjects in a tavern setting and the subjects' MAST scores produced statistically significant coefficients of .46 and .45, respectively (Skinner, 1981). Test-retest reliability of measures has also reached levels recognized as scientifically acceptable, as in one study in which outpatient alcoholics' reports of hospitalization and arrests corresponded at the 92% level over two interviews conducted three weeks apart (Skinner, 1981).

However, Watson et al. (1984) take a much more skeptical view, citing research which also found moderate correlations between client self-reported and collateral-assessed alcohol consumption, but where only about one-half of the variance in the clients' responses coincided with the collaterals' accounts and where a distinct pattern

emerged in which the less stable alcoholics *underreported* their consumption.

These differing positions notwithstanding, the prevailing conclusion is reflected in Marlatt's comment that "the literature generally supports the utility of self-report data in the assessment of drinking behavior" (1981:35) and in Fine's point that instruments such as the MAST and others "have proven to be reliable, efficient, and simple enough to apply ... for routine use with populations where alcohol abuse and alcoholism are suspected to be problematic" (1980:132).

Thus, the major implications of the validation studies have not been to abandon testing based on self-reports, since this may be the only readily available information, but to emphasize the need for refinement of diagnostic instruments and application of rigorous research and screening methods.

Increasingly, the screening programs conducted in applied settings supplement questionnaire data with evidence collected from official records, knowledgeable others and, in particular, from appropriate laboratory tests (Fine, 1980; Foundation for Health Care Evaluation, 1982).

Biochemical Markers

Laboratory tests performed on specimens of patients' body fluids have produced results serving as useful markers for diagnosing alcoholism and alcohol abuse. In general, these tests detect alterations in metabolic functioning and blood chemistry that are known to have a high frequency of occurrence among alcoholics or heavy users of alcohol.

The number of relevant tests reported in the literature vary; as many as 25 tests have been found to be capable of distinguishing alcoholics from nonalcoholics (Heckler, 1983; Holt et al., 1981). For example, Paredes (1982) briefly reviewed 10 biochemical changes amenable to test. Morse and Hurt (1979) utilized seven diagnostic tests in their screening regimen. Holt et al. (1981) list seven of the more common laboratory markers of alcohol abuse.

Included among the most frequently cited tests are those measuring

a) serum glutamic oxaloacetic transaminase (SGOT) and glutamic pyruvic transaminase (SGPT), serum enzymes which increase significantly in 50% or more of active alcoholics and persons who have been heavy drinkers for 10 to 20 years (Holt et al., 1981; Paredes, 1982).
b) gamma glutamyl transferase (GGT), another serum enzyme that appears at elevated levels in moderate-to-heavy drinkers and in up to 74% of late-stage alcoholics (Paredes, 1982).
c) abnormalities of plasma amino acids (AANB), which have been observed to occur in association with chronic excessive alcohol consumption (Shaw, 1981).
d) high density lipoproteins (HDL), a cholesterol maker that may rise in as many as 68% of heavy drinkers (Paredes, 1982).
e) mean corpuscular volume (MCV), an alteration in blood cells which occurs at elevated rates in 75% to 90% of alcoholic patients (Holt et al., 1981).
f) blood alcohol concentration (BAC), where positive results, obtained with 15% to 45% of emergency room cases (Murray, 1974; Saxe et al., 1983), are frequently indicative of alcohol abuse, and readings of more than 15 mg% without obvious intoxication provide evidence of tolerance (Holt et al., 1981).

With the seven lab tests employed by Morse and Hurt (1979), the most common abnormal result was an elevated GGT value, which occurred in 63% of their sample of 62 alcoholics.

Skinner et al. (1984a) assessed the predictive accuracy of a brief physical trauma scale and three laboratory tests (GGT, MCV, HDL) with three samples: 68 alcohol abuse outpatients; an age-sex matched comparison group of 68 social drinkers; and 61 family practise patients. In terms of identifying alcohol abuse patients, the trauma scale displayed greater sensitivity (68%) than the biomedical indicators (range = 26%-49%), but the lab tests demonstrated excellent specificity by classifying very few of the social drinkers as false positives (range of correct assignments = 88%-99%). With the family

practise patients, the trauma scale also showed greater sensitivity (67%) than the lab tests (range = 0%-25%) but, again, the latter had superior specificity (range = 87%-94%). These investigators conclude that, used in combination, the trauma scale and the biomedical tests could lead to improved detection of alcohol problems in both general hospital and family practise populations.

Newly developed diagnostic methods involving computer analysis of comprehensive data from multiple laboratory tests also show promise for screening purposes. Paredes (1982) describes one evaluation of this approach in which 82% of a group of patients diagnosed as alcoholics were correctly identified; however, so were 44% of a control group of nonalcoholic patients. But in another study with a similar diagnostic instrument the technique demonstrated greater accuracy by correctly discriminating 100% of medical ward alcoholics, 94% of treatment program alcoholics, and 100% of a group of nonalcoholic medical controls (Paredes, 1982).

Skinner et al. (1984a) created a composite index by combining information from a trauma scale and three lab tests. Regression analysis of this data produced marked improvements in sensitivity (86%) for detecting excessive drinking in a sample of family practise patients over the best single measure (67% for the trauma scale) but only marginal gains in specificity.

Complications

1. The main complication that arises with the use of medical tests concerns the balance between their sensitivity and specificity for alcohol-related disorders. A common problem has been that, although the tests have acceptable specificity for alcohol abuse (90% or more) and ruling out false positives, they have only moderate sensitivity (30%-40%), which leads to misclassification of an unacceptably large number of cases as false negatives (Jankowski and Drum, 1977; Skinner et al., 1984a). Multivariate analyses by computer have the potential to reduce these errors by analyzing a broader data base but their costs, complexity, and technical nature limit their practicality.

2. Most laboratory tests detect biochemical changes that appear only after years of heavy drinking. This restricts their utility for screening younger patients with less severe medical complications. The presence of liver disease can also seriously distort test results. In addition, many of the conditions measured by the tests return to normal within days or weeks of discontinuation of drinking (Holt et al., 1981; Skinner et al., 1980).

3. Shortcomings also appear when testing for BAC. Clearly, not all alcohol-abusing patients present with positive BAC readings and a substantial number of those who do are not alcohol dependent.

Experience and evidence to date suggest that laboratory tests can be a valuable component in screening programs conducted among hospital inpatients, especially when used in combination with self-report and interview instruments.

An important third component of thorough diagnostic work-ups are the clinical observations made by medical staff (Fine 1980; Skinner, 1981).

Direct Observation

Observations made directly by hospital staff, which derive from an understanding of alcohol's myriad effects on the body, can also provide information leading to early detection of alcohol abuse among their patients. For example, the physician may observe presenting signs and behaviors that are suggestive of alcohol abuse. Included among the often very general complaints are heartburn, intense morning cough, tachycardia (a resting heart rate of over 100 beats per minute), tremor, cigarette burns, anxiety/stress/strain, insomnia, and hyperglycemia (Davis, 1977; Goodwin, 1981). Persons who consume excessive amounts of alcohol are also prone to suffering assorted physical trauma and skin lesions (Holt et al., 1981; Skinner et al., 1984a).

Observation of such signs, coupled with Morse and Hurt's starting point of "a high index of suspicion," can lead practitioners to follow the next steps in the alcoholism

screening/assessment sequence: "ask the proper questions, gather the evidence, and understand the condition" (1979:2688). In obtaining a complete history, the physician may also interview the patient's spouse and children for supplementary information (Morse and Hurt, 1979; Padmore, 1984).

Physicians are also advised to carefully observe patients diagnosed as alcoholic for clinically significant levels of depression and anxiety (Fine, 1980; Schuckit, 1979).

Complications

Primary issues are those of instilling within medical professionals an adequate knowledge of alcohol and a sufficiently open and inquiring attitude toward alcohol abuse so that the broad "index of suspicion" will be readily aroused. Physicians are more likely to act on their suspicions when they recognize that they "... have a special competence to discover risks that patients unwittingly run in their daily lives [and that] they also have a special status and authority to persuade individuals to alter their habits" (Jonas, 1984:452).

The practitioner can then focus attention on gathering further screening data to assess the nature and extent of the patient's alcohol-related disabilities. An alternative would be to refer the case to another agency for specialized assessment.

With the assessment complete and the diagnosis determined, this process leads to the third of Skinner's (1981:323) questions, noted earlier: "What are effective strategies for using the information in making treatment decisions?"

Important factors in mobilizing medical staff to initiate screening/assessment procedures and then to divert alcohol-abusing patients into appropriate treatment are examined in the next chapter.

5 Mobilizing Hospital Staff to Screen for Alcoholism

The problem is that hospital personnel frequently do not display adequate sensitivity for alcohol or drug abuse among their patients. Indeed, the consensus in the literature is that the health care professionals in North America have been negligent in terms of case-finding for alcohol dependence and abuse in hospital settings. Several major deficiencies are concisely summarized by Westermeyer et al. (1978) in their synopsis of a study conducted in a U.S. university hospital where it was found

> that the majority of physicians and nurses at this facility (1) did not take adequate alcohol and drug use histories, (2) did not identify chemical dependency as a medical problem even when they knew dependency was present, and (3) did not involve themselves in treatment or treatment recommendations even when the problem was identified (p. 53).

Referral of patients with alcohol and drug dependency problems to other sources of help frequently does not occur (Lewis and Gordon, 1983). In general, physicians have focused their attention on treating the secondary health complications while showing minimal interest in psychosocial variables (McGee, 1979; Millman, 1975). Fisher et al. (1975) report a tendency among practitioners to perform "diagnosis by appearance," i.e., to more readily make a determination of alcoholism when the patient conforms to the derelict stereotype. Persons who are obviously intoxicated are less likely to be admitted to hospital and tend to receive a lower standard of care (Chappel, 1973; Chappel and Schnoll, 1977; Millman, 1975).

Four major points raised in explanation of the above are that

a) physicians and nurses don't know about alcoholism.
b) they have negative attitudes toward alcoholics.
c) institutional factors conspire against patients with abuse problems.
d) consequently, such cases frequently remain undiagnosed or are inaccurately diagnosed.

5.1 Deficiencies in Knowledge

The major knowledge gaps identified among doctors and nurses are that

a) many don't understand the disease concept of alcoholism or remain unconvinced of its status of a disease (Bissell, 1975; Brown, 1972).
b) they don't recognize the prevalence of alcohol abuse in hospital populations (Lewis and Gordon, 1983).
c) they don't know the diagnostic signs and appropriate laboratory tests (Lewis and Gordon, 1983).
d) they don't know how to take adequate drug use histories and case notes (Jankowski and Drum, 1977; Westermeyer et al., 1978).
e) they don't understand how to manage patients with addictions problems (Chappel, 1973; Kinney et al., 1984).
f) they don't make referrals because they are unfamiliar with other treatment programs or remain unconvinced of the efficacy of treatment for alcohol dependence on the assumption that it is caused by moral weakness and lack of willpower (Brown et al., 1979; Chappel and Schnoll, 1977; Lewis and Gordon, 1983).

As a group, physicians have demonstrated a low awareness of substance abuse in general and of their own high-risk status in terms of developing chemical dependencies (Brown et al., 1979; Rabinowitz, 1983).

Most observers locate the source of these deficiencies within the medical education provided to doctors and nurses which Millman (1975:36) describes as "inadequate, fragmented, often pejorative" with respect to addictions.

Criticism focuses on the *small number* (Brown et al., 1979; Kissin, 1975) of addictions courses available in medical school curricula and the *lower priority* (Brown, 1972; Jessee, 1971) assigned to the presentation of this subject matter, which results in only minimal exposure of medical students to the information they will need to detect substance abuse among their future patients and to make the appropriate decisions respecting treatment.

Other inadequacies in the structure and content of medical education are noted in the literature:

a) lack of faculty members and hospital residents with a special interest in substance abuse who could expand the knowledge base and promote the area among students (Willard, 1971).
b) underfunding of alcoholism research in medical school and hospital settings (Seixas, 1975; Willard, 1971).
c) poor integration of the physiological and behavioral components in the clinical teaching about alcoholism (Kinney et al., 1984).
d) limited clinical resources and few affiliated treatment programs through which medical students could get needed clinical experience (Kissen, 1975; Willard, 1971).

Surveys of medical schools and reviews of their curricula provide considerable evidence in support of these criticisms.

The Macy Conference Report noted that, of 120 Canadian and U.S. schools of medicine contacted in 1972, only 45 offered courses dealing with alcoholism (Brown et al., 1979).

Pokorny et al. (1978) analyzed data from 105 of 117 U.S. medical schools and all nine osteopathic schools surveyed in 1976, and found that the number of hours of required substance abuse teaching accumulated in four years of schooling varied over the wide range of 0 to 126 hours, with 93 schools requiring one or more hours, for an overall average of 26 hours of required substance abuse teaching. When the required substance abuse hours were calculated as a percentage of total required hours, the figures ranged from 0.0% to 3.1%, with a mean of 0.6%. Regarding elective courses offered on substance abuse, 21 schools (20%) indicated three to ten electives.

Pokorny and Solomon (1983) recontacted 40 of the medical schools in 1981 in a smaller-scale study designed to compare clusters of schools having "rich" versus "limited" programs on substance abuse and whether or not a career teacher for addictions was retained. The results from the 35 responding schools revealed considerable improvement between 1976 and 1981 on all major measures: mean number of required teaching hours increased from 17.3 to 23.1 hours, a gain of 34%; mean number of required teaching hours in substance abuse relative to total required teaching hours rose significantly from 0.4% to 0.6%; average number of electives offered tripled from 0.9 to 2.7; and the number of affiliated clinical programs climbed from an average of 1.6 to 3.0. The analysis further indicated that, although the medical schools with "limited" programs plus career teachers demonstrated the largest overall gains, those with "rich" programs plus career teachers remained topped ranked, as they were in 1976.

These investigators caution that the improvements detected shouldn't be allowed to obscure the fact that teaching hours on substance abuse remain well below 1%, "far out of proportion to the prevalence and importance of alcoholism and drug abuse in public health and hospital and office practise" (1983:321).[7]

[7] However, there is no consensus at this point on how much or what kind of emphases on chemical dependencies should be built into medical education. Dr. J. Rankin, associated with the Ontario College of Physicians and Surgeons, recently made the suggestion that alcohol and drug abuse should not be taught as an isolated topic; rather, it would be more beneficial if addictions content was integrated into 10% or more of the course work (Rich, 1984).

A 1984 review undertaken by the Ontario Medical Association with the Province's five medical schools showed that about 0.5% of teaching time was spent on addictions (Lee, 1984). The breakdown for specific schools was: University of Ottawa, 25 hours; Queens University, 15 hours; University of Toronto, 14 hours; University of Western Ontario, 9 hours; and McMaster University, no credit hours specified.

5.2 Negative Attitudes

A large body of opinion also holds that negative attitudes contribute to physicians' lack of involvement in addictions treatment. Rabinowitz (1983) suggests that physicians frequently hold "cynical" attitudes toward alcoholics, perceiving them as being "passive, aimless, and ultimately hopeless." Similarly, Romney and Bynner (1985) detected passivity, weakness, and instability as the dominant perceptions of alcoholics held by doctors, nurses, and other professionals working in a large hospital in Calgary, Alberta.

Analyses of these counterproductive beliefs point to "attitudinal barriers" operating in both patients and physicians (Chappel, 1973; Chappel and Schnoll, 1977).

Patient Barriers

Major trouble with drug-dependent patients can arise from their tendency to resist treatment and their unwillingness to play the traditional patient role of seeking help and cooperating in treatment. Confronting such patients often evokes denial of problems, projection of responsibility onto others, and procrastination regarding efforts to change behavior. These patients are sometimes deceitful. They may provoke and alienate medical staff by dropping out of treatment, manipulate doctors to obtain prescriptions, and challenge staff's authority (Chappel, 1973).

Physician Barriers

Physicians are apt to become frustrated by such antagonistic behaviors and come to view these patients as unrewarding to work with. Reactions of this nature are, in Chappel's (1973) view, encouraged by a medical education that fails to prepare them adequately for the management of alcoholic and drug-dependent patients.

Further, despite the medical establishment's acceptance of the "disease" concept of alcoholism, many physicians assess the disorder from as much as moral as medical standpoint, viewing it as a breakdown of self-discipline, a manifestation of social failure (Brown et al., 1979; Chappel, 1973). Unsure of the "disease," practitioners can come to feel unsure of themselves in relation to it; this can lead to feelings of anxiety about confronting the patient and affirming a diagnosis implicating alcohol abuse (Millman, 1975). Knox (1985:71) describes the threat as follows: "this business of why one becomes a doctor and why one identifies himself as 'God' is very overpowering for most physicians, and it gets torn down every time they run up against an alcoholic."

Complications

Various factors contribute to the ambivalence displayed by medical practitioners toward alcoholics.

1. From a medical perspective, the addictions field has a distinctly unscientific character (Kinney et al., 1984). Many physicians see alcoholism, for example, as a vaguely defined disorder, with no consistently identifiable set of precursors, with no exclusive alcohol-induced lesions, of unpredictable course, and for which no proven "cure" exists. Thus, with the etiology of alcoholism unknown, practitioners are unclear whether alcoholism is a "disease," and therefore a medical responsibility, or whether it is a behavioral disorder falling within the purview of behavioral specialists (Fisher et al.,

1975). Thus far, as we have seen, doctors have been content to treat the physical complications and leave the psychobehavioral aspects to others. Not surprisingly, the remedies repeatedly called for in the literature stress clarification of the physician's role in identifying, confronting, and treating substance abusers (Chappel and Schnoll, 1977; Kissin, 1975; Millman, 1975; Seixas, 1975).

2. The progression of alcoholism through its natural history does not readily lend itself to the currently dominant approach in medical education which focuses on the identification of pathologies in narrow organ systems and the application of etiologically based, curative therapies. The preferred approach, described by Kinney et al. (1984:454) as "inductive, synthetic, and integrative," would more effectively acquaint medical students with the primary disorder by combining the physiological and the behavioral aspects of alcoholism. The view of alcoholism advanced in this approach would not be curative but broadly adaptational, seeking ways to manage a chronic disorder.

3. A great deal of variation exists among physicians in terms of how much they already know about alcohol dependence, the numbers of patients with alcohol abuse problems that they encounter, and their current interest in doing assessments, making referrals, or offering treatment (Pulver, 1975). In surveys with physicians in private practise, a majority indicate seeing at least some patients with drinking problems, with about 8% of them reporting in the order of 100 such patients per year, and with a third or more providing some form of treatment (Clement, 1984; Fisher et al., 1976; Smith and Barnes, 1977). Thus, family doctors and other practitioners *already* provide a significant volume of alcoholism treatment services.

4. It would be unrealistic to expect to mobilize all physicians in a campaign against alcoholism or to involve them deeply in treatment. In terms of this paper's concerns, various writers have suggested that a better grounding in alcoholism be provided to medical students generally, key medical departments such as psychiatry, family practise, and internal medicine, specialists within hospitals, and faculty-run medical schools (Kissin, 1975; Willard, 1971). It would also be inappropriate to assume that each practitioner could or should be equally interested in the psychosocial aspects or in providing long-term counselling and support (Millman, 1975). However, as Chappel and Schnoll point out, "even if he does not wish to treat these patients, he has a minimum responsibility for diagnosis and referral" (1977:2319).

5.3 Barriers Within the Alcoholism Field

In a provocative article, Kinney et al., (1984) maintain that the alcoholism field has itself erected significant barriers to the acquisition of an alcoholism education. Major problem areas identified are

a) failure to work toward establishing clear and cooperative relationships with other medical specialities, especially in relation to the management of chronic disorders. The authors view the trends to define alcoholism as a separate entity, to independently establish the credentials of addictions professionals, and to distance addictions from psychiatry as encouraging further isolation of the field and deemphasis of the clinical aspects of alcoholism in medical education.

b) maintenance of a "craft orientation" which supports a "primitive, confused, and ambivalent scientific orientation" (p.456). In the current operation of the field, the ideological commitments of practitioners play at least as important a role as belief in the scientific method or willingness to refine treatment on the basis of research findings.

c) failure to develop a vocabulary "consistent with and building on existing biopsychosocial paradigms" (p. 457). The alcoholism field operates with a parochial language: imprecise, emotionally laden, and distinctly moralistic. Many of its practitioners are themselves unsure whether to view alcoholism as a

" disease" or a character flaw.

These criticisms nothwithstanding, Kinney et al. acknowledge that interventions with substance abusers appear to achieve success rates in terms of patient compliance and outcomes that are often superior to those achieved in the treatment of other chronic disorders such as hypertension, diabetes, and tuberculosis. In addition, the alcoholism field has gained valuable expertise in the areas of family counselling, crisis intervention, self-care, and community support.

5.4 Institutional Barriers

Hospitals, as organizations, also reflect the ambivalent view of alcohol abuse which has been noted among doctors and other segments of society. Hospitals, too, can exert a dampening influence on efforts to identify chemical dependency problems (Lewis and Gordon, 1983; Romney and Bynner, 1985).

Hospital administrators may become concerned over the perceived stigma of making alcoholism an issue within their facility, over predicting the staff and material resources needed for intervention services, over cost recovery, and over difficulties in expanding services in a climate of economic restraint (Latham, 1983).

The factors described above, residing within patients, practitioners, and institutions are believed to operate singly and in combination to reduce the rate at which medical staff identify alcohol-related cases, to delay diagnoses, and to cause misdiagnoses.

5.5 Proposed Remedies

Numerous ideas have been advanced to counter the attitudinal barriers, alcohol stereotypes, knowledge gaps, and institutional factors that impede aggressive case-finding among patients in need of treatment for addiction. Different responses are recommended for *medical students and practising physicians* and may be local or national in scope.

Assisting Students

Although the evidence from medical schools suggests that students are being taught the rudiments of alcoholism and that they receive instruction on the physical effects of alcohol in their basic science courses, the prevailing conclusion is that medical schools fall short in providing adequate training in primary addictive disorders, particularly in regard to screening and intervention, clinical management, and prevention (Pokorny et al., 1978; Willard, 1971).

Consequently, the emphasis has been on expanding the quantity and quality of both core courses and electives in medical school curricula which would be available to students early in their medical training. According to Brown et al., important curriculum objectives identified by educators and physicians include the need to:

- Instill positive attitudes in the medical student toward the alcoholic patient.
- Expose students to recovered alcoholics, particularly through A.A.
- Teach students how to take an adequate alcohol-drug use/abuse history.
- Make use of alcoholism research programs as a means of attracting medical students' interest in studying alcoholism.
- Emphasize that alcoholism is a behavorial, social, and biological problem.
- Stress the importance of family involvement in alcohol problems (1979:4-5).

It has also been pointed out that it is more difficult to modify attitudes then to convey information and that providing more of the latter will not necessarily produce

desired changes in the former (Chappel and Schnoll, 1977; Fisher et al., 1976). Also, some aspiring doctors will hold negative, stereotypic images of alcoholics *before* setting foot in medical school. Nevertheless, studies have documented positive changes in students' attitudes along with increments in knowledge following their exposure to patients undergoing treatment and their completion of short courses on alcoholism or more extensive training programs (Brown et al., 1979; Fisher et al., 1975; Fisher et al., 1976).

Increased funding has also been called for to stimulate the interest of researchers in alcoholism. The expectation is that a core of teachers with expertise in addictions will emerge to recruit new students and to serve as their role models (Fisher et al., 1976; Kissin, 1975).

Expansion of clinical resources and facilities has also been recommended. Whether housed in the educational facility or in a community agency, these resources are regarded as essential because they enable students to gain experience with recovering patients under clinical conditions (Willard, 1971).

Assisting Physicians

Doctors can be made aware of statistics on the prevalence of alcohol abuse among inpatients and of the importance of alcohol as a risk factor for other common health disorders, like cardiovascular disease, for example (Brody and Mills, 1978; Millman, 1975).

The more popular and effective training programs have been found to be easy to access, reasonable in cost, and designed with practical content that corresponds to participants' needs (Bissell, 1975). Discussions that focus on clinically oriented topics such as handling alcoholic patients or making effective use of crises may be of greatest value to practitioners.

National and local addictions associations and medical societies offer short courses and Continuing Medical Education seminars on alcoholism. Longer courses are also available, such as the seven month family practise training program for residents at the Medical University of South Carolina (Brown et al., 1979). An evaluation with these residents showed that the number of positive alcoholism diagnoses rose sharply over the year after the course ended. They also exhibited significant increases in knowledge and more positive attitudes.

Field trips to area treatment facilities, liaison with community agencies and A.A., and post-discharge contact with patients who have been successfully treated help to create a more positive image of alcoholism treatment (Rabinowitz, 1983).

Some responsibility also rests with voluntary and publicly funded addictions agencies to actively promote their programs to the medical community. Areas to concentrate on include making capable staff available to share their knowledge at medical seminars and other training events, developing the referral system, and generally strengthening communication links with physicians (Powell, 1981).

Alcoholism can be made a more salient topic by passing information through the regular channels of communication in hospitals: staff meetings, journals, case conferences, and hospital rounds, for example (Kissin, 1975; Lewis and Gordon, 1983; Pulver, 1975; Seixas, 1975). A useful focus is clarification of the physician's role in the areas of detection, confrontation and intervention, and treatment. For example, Chappel and Schnoll (1977) report that a nine-fold increase in the detection rate of alcoholism occurred in one British hospital following the introduction of a screening questionnaire for routine use.

Money or other benefits might serve as incentive for hospital staff to work in the emergency service or in a community treatment program and thereby gain valuable knowledge and experience (Kissin, 1975; Millman, 1975).

A comprehensive strategy involves establishing an interdisciplinary team of doctors, nurses, and social workers within the hospital to cooperate in the various tasks of detecting and treating patients with substance abuse problems. Included among the reported benefits of such teams, in hospitals where they have been set up (Lewis and

Gordon, 1983; Rabinowitz, 1983), are

a) the close working relationships developed among the various primary care units.
b) the opportunity for attending physicians to learn more about the management of detoxification by consulting other specialists.
c) the development of broad-based screening procedures for use as required among inpatients and rapid intervention with emergency room cases.
d) greater utilization of community addictions services in the areas of detoxification, residential treatment, outpatient, and community education on alcoholism.

As a summary point, a key intent in assisting the physician is to encourage his or her support of a long-term rehabilitation plan for the alcohol-abusing patient, to stress that the physician serves an important "gate-keeper" function in accessing needed services for the patient, whether these services are located inside or outside of the hospital.

6 The Hospital as a Point of Entry into Treatment

The argument considered in this review suggests that significant numbers of patients in acute care settings have underlying but undiagnosed problems with alcohol; therefore, their needs should be specifically addressed through systematic intervention, referral, and treatment, as required. This position also maintains that hospitals are suitable locations for initiating early intervention (for reasons in addition to the fact that the patients are located there!).

It is thought advantageous to intervene because

a) the patient faces medical and other crises which usually weaken his or her defenses and denial systems (Lewis and Gordon, 1983; Rabinowitz, 1983).
b) the patient will be more vulnerable to confrontation, open to counselling, and motivated to change (Lewis and Gordon, 1983).
c) hospitals offer a protective, structured environment that facilitates interaction with other alcoholic patients and which discourages patients from dropping out of treatment (Seixas, 1982).
d) medical and ancillary services are nearby if needed (Bednarek et al., 1983).
e) medical staff can provide auditing and evaluation of initial therapy (Bednarek et al., 1983).

Hospitals form an important element in the addictions treatment network. They are especially well suited for *detection and intervention* with patients affected by substance abuse complications and for their subsequent referral to specialized assessment and treatment services (Lewis and Gordon, 1983; West, 1977).

Case-Finding and Assessment

Case-finding begins with an initial screening that usually incorporates data collected through the alcohol and drug use history, medical tests, case notes, and possibly interviews with close others. As noted in Chapter 2, case-finding need not be a complex effort and the attending physician has the option of maintaining close, direct involvement with the patient or referring the case to another agency for comprehensive assessment. A social worker or resident psychiatrist with expertise in addictions may be consulted if such staff are available.

In any event, a diagnosis is made which may implicate substance abuse. Decisions then follow regarding further handling of the patient: retaining him or her in acute care, arranging referral to another agency for detailed assessment and treatment, or discharge.

Differential Treatment Planning

After the patient's presenting medical problem has been addressed and physical functioning stabilized, it is appropriate for the primary care physician/treatment team to conduct a detailed assessment for the purposes of *differential treatment planning* (Skinner, 1981).

As outlined by Sobell et al. (1982:144), differential treatment planning is based on "an indepth and multifaceted assessment of the client's overall life functioning." Through this evaluation, a detailed picture emerges of specific problems in the patient's physical health and psychosocial adjustment. These problems are targeted for improvement. The patient and counsellor(s) together devise a "strategic plan" that specifies short and long-term goals for these target areas as well as incorporates objective measures which enable the patient's progress to be monitored and which reveal any modifications needed in the treatment plan.

The differential treatment planning approach should be of sufficient scope to incorporate the nature of the patient's alcohol problems, personal characteristics, and treatment experience, for example, and should attempt to *match* the patient to the most appropriate kind of treatment on the basis of his or her unique profile (Saxe et al., 1983; Skinner, 1981; Sobell et al., 1982). The rationale of such planning involves "shaping clients out of treatment," guiding them toward the eventual outcome of increased self-sufficiency (Sobell et al., 1982).

6.1 Hospital-Based Treatment Programs

U.S. hospitals offer a considerable variety of treatment options for chemical dependencies (Frances and Alexopoulos, 1982; Seixas, 1982; West, 1984). The most common involve medically supervised detoxification which, along with treatment of major medical problems, usually takes place in acute care wards. In larger urban hospitals, however, this type of care is frequently provided through an in-house addictions service which may exist separately or within the department of psychiatry (Collins, et al., 1980). Some hospitals provide little else but minimal detoxification while others may employ a small staff of addictions counsellors available for consultation/referral or a large interdisciplinary team which has access to a comprehensive range of services: inpatient, outpatient, outreach within the hospital, and referral to community programs (Galanter, 1977; Lewis and Gordon, 1983; Rabinowitz, 1983; Saxe et al., 1983).

In Canada, general hospitals are also utilized for the medical management of withdrawal and the acute care of patients with chemical dependencies. Similarly, inpatient psychiatric units operating within hospitals, or as stand-alone facilities, serve many persons diagnosed as having alcohol-and-drug-related disorders (see Chapter 2) (Working Group on Alcohol Statistics, 1984).

However, few hospitals allocate beds primarily or exclusively for the treatment of substance abusers and, while there are private clinics, there are currently no addictions treatment programs operated by private interests, *for profit*, in Canadian general hospitals.[8]

There is already limited diversion of patients from hospitals to other agencies specializing in addictions treatment. For example, Alberta Alcohol and Drug Abuse Commission data show that referral from hospitals accounted for between 3.6% and 6% of its total annual admissions during the years 1979-1984 (Sawka and Hewitt, 1984).

Suitable Patients for Hospital-Based Treatment

Most authorities agree that the most suitable patients for treatment in a medical ward are those with an acute medical problem alone or in combination with advanced clinical alcoholism as indicated by tolerance to alcohol and likelihood of experiencing severe withdrawal symptoms (Saxe et al., 1983; Seixas, 1982). In general, such patients require more intensive care and accordingly, following Frances and Alexopoulos, alcoholics should be admitted to hospital when:

> Severe concurrent medical and psychiatric illness require hospitalization...
> Detoxification cannot safely be done as an outpatient.
> The patient is unable to stop drinking outside of the hospital or has failed to respond to less intense forms of treatment... (1982:386).

[8] The one exception is the alcoholism and drug CareUnit, operated as a pilot project by Comprehensive Care Corporation (Canada) Limited under contract to the General Hospital in Wetaskiwin, Alberta (Salter, 1985). The CompCare/Wetaskiwin Hospital Board proposal describes the program as providing intensive inpatient services as well as outpatient aftercare. The stated objectives include demonstrating the cost-effectiveness of inpatient treatment, achieving financial self-sufficiency for the program, and producing eventual cost savings for the health care system (Comprehensive Care Corporation, 1984; Synenko, 1984). CompCare management believes that the CareUnit, which began operating in January, 1985, will gain acceptance in other jurisdictions on the basis of its performance in Alberta (Salter, 1985).

When a patient first enters hospital, close monitoring by medical personnel may be required. As Arroyave et al., (1980:191) point out, "many of the patients undergoing withdrawal are unarguably physically sick but when readmitted a month or two later for treatment the focus has changed to the psychological struggle with their drinking." At this later stage, it will in most cases be appropriate to divert the patient into a specialized alcoholism program operating on an in-or-outpatient basis with a psychobehavioral, not medical, treatment orientation.

In addition, the vast majority of individuals can be safely withdrawn from alcohol in nonhospital environments. Hospitalization may only be required with those 5% to 15% of alcoholics with advanced complications (McGee, 1979; Schuckit, 1979; Whitfield, 1982).

6.2 Disadvantages of the Hospital-Based Programs

The high *cost and complexity* of operating addictions services in technologically intensive medical facilities with highly paid professional personnel represent the *major disadvantages* (Bonstedt et al., 1984; O'Connell, 1984; Whitfield, 1982). Indeed, it can be two to three times more expensive to run a hospital-based, inpatient service than it is for similar therapy organized as a day program, or other forms of nonmedical, inpatient treatment (Whitfield, 1982).

Others argue that, besides the additional expense, hospitals present a "sterile, impersonal atmosphere," that these facilities interrupt the patient's functioning in social and job-related roles, and that they delay focusing on his or her self-help skills (Baker, 1982; Stinnet, 1982). The degree of isolation imposed by hospital and other inpatient programs also frequently magnifies problems of community reentry for many patients.

6.3 Evolution in Program Design

One of the major challenges facing the addictions field involves the development of alternative treatment programs and modalities that are as effective as, but less costly than, existing approaches. In order to reduce the high costs of bed care, it has been recommended that the period of hospitalization be kept short (2-4 days) (Frankel, 1983), that the individual be referred as soon as possible for outpatient care (Stinnet, 1982) and that paraprofessionals become involved in providing care (Galanter, 1977).

Suggestions for improving program effectiveness include

a) staging the intervention early, when the patient's prognosis for recovery is most favorable (Skinner and Holt, 1983).
b) identifying groups at higher risk of developing chemical dependency problems and, within them, profiling subgroups of individuals most likely to respond to treatment (Edwards et al., 1977).
c) taking "individual difference factors" into consideration and attempting to match the patient/client to the most promising form of treatment (Saxe et al., 1983).
d) developing a broad range of specialized addictions treatment services and connecting them more closely, through the diversion/referral process, to the mainstream health care system (West, 1984).

Experimentation has occurred in program design. Attempts have been made to combine the best of the inpatient and outpatient settings while emphasizing, in varying degree, the medical or behavioral models. Major ones are:

Partial Hospital Treatment (PHT)

This cheaper alternative involves offering a hospital-based detox service but running it as a day program (Collins et al., 1980; Frankel, 1983). These programs generally

offer the same components as their inpatient counterparts and they are designed for patients who are ambulatory but who cannot, for family, job and other reasons, be admitted into a full-time hospital program. Describing one such program in the U.S., Collins et al. report that "day care treatment is seen by patients as preparation for longer term maintenance therapy, generally in A.A., with the assistance of occasional supportive counselling..." (1980:22).

Free-Standing Inpatient Alcohol Treatment Centers

Such specialized centers need not be part of a hospital or psychiatric facility, but many of the existing programs rest on the medical model and have a strong A.A. element in recovery and aftercare with psychiatric support as needed (Hunter, 1982). Most often organized as private clinics, they form a more prominent component in U.S. addictions treatment services than is the case in Canada.

Intermediate Care Facilities

The intended purpose of these facilities is not for treatment per se, but further screening and assessment of patients for placement in specialized aftercare services (Clark Institute of Psychiatry, 1982).

Nonmedical Social Setting Detox

In programs of this type, clients stay in home-like residences and are encouraged and supported through detoxification, without the aid of drugs, by nonmedical personnel (Stinnet, 1982).

Outpatient Detoxification

Programs may be based on the medical or behavioral models or some combination of them (Bonstedt et al., 1984; Stinnet, 1982). It is obviously important that patients be carefully screened to ensure that they are medically fit before commencing treatment. This approach is best suited for patients with more social supports and fewer alcohol-induced impairments. However, drop-out rates up to 70% have been recorded, prompting program designers to incorporate elements from inpatient programming to create a more intensive modified outpatient format (Collins, et al., 1980).

Brief Counselling

Some patients benefit from an hour or less of counselling in which a credible source such as a doctor, nurse, or social worker frankly discusses the damaging consequences of heavy drinking and advises on lifestyle changes needed to moderate consumption (Blume, 1983). This method is appropriate for early-stage abusers; therefore, careful screening should be conducted to ensure that patients are socially stable, free of major psychopathology, and not physically addicted (Skinner and Holt, 1983). Offering the major advantages of low cost and low complexity, brief counselling interventions have had positive outcomes with various clientele documented in the range from 8% abstention (Burnum, 1974) to 65% improvement/no problems (Skinner et al., 1984) at follow-up.

6.4 Cost-Effectiveness of Different Programs

Inpatient hospital-based programs appear to be most useful in controlling severe withdrawal symptoms, attending to injuries, treating a disease or sickness, and otherwise stabilizing a patient's physical condition in preparation for psychological and behavioral treatment. Thereafter, their cost-effectiveness rapidly declines as the focus of rehabilitation shifts to the patient's long-term goals of achieving complete or a greater

degree of sobriety and independent functioning.

The recovery rates for alcoholism treatment reported in the literature commonly fall in the 60%-80% range (Kinney et al., 1984) with no major differences in effectiveness noted between inpatient and outpatient programs (Heckler, 1983; Polich et al., 1980). Follow-up studies have found that intensive, hospital-based programs are no more successful than outpatient, halfway house, or self-help groups in assisting clients/patients to achieve abstinence or to reduce the severity of their problems (Bonstedt et al., 1984; Wilson, et al., 1978). For example, one study that compared outcomes among patients who had partial hospital treatment with those from an inpatient program found that the probability of their being readmitted six months after completing treatment was the same (about 25%) (Frankel, 1983).

6.5 Trend in Screening Hospital Inpatients

As outlined throughout this paper, researchers in addictions and epidemiology have understood for some time that socially and economically significant numbers of hospital inpatients have unattended alcohol problems. Increasingly, this awareness is spreading to the general and medical communities along with a growing agitation to intervene with these patients and provide them with appropriate treatment.

As part of this trend, the unitary disease concept of alcoholism has been slowly superseded by the notion of a syndrome characterized by multiple and variable dimensions of dysfunction.

The rationale for early intervention among alcohol-or-drug abusing inpatients, with its elements of careful screening/assessment and matching treatments to patients, is also slowly gaining ground. A persuasive body of evidence already exists that such efforts are rewarded by the achievement of substantial cost savings in both economic and human terms. Galanter (1977:414-416) outlines several other key aspects of an emerging medical approach to addictive illness, one involving

a) *staff-patient interaction* that addresses and attempts to minimize the attitudinal barriers to effective treatment.
b) *coordinated treatment planning* that accepts input from an interdisciplinary team and attempts to provide individualized patient care.
c) *staff education*, which helps to create a cooperative environment and provides the interdisciplinary team with the knowledge needed to do its work effectively.
d) *continuity of care*, an idea which recognizes that recovery from a drug dependency extends far beyond the treatment of acute medical complications and typically requires specialized aftercare. This allows rapid diversion of affected patients from the hospital ward into the network of addictions services in the community, where more cost-effective and longer-term treatment alternatives are available.

Galanter, with others, does not see this approach as being incompatible with the way that hospitals currently operate and optimistically concludes "that the issue is less one of how to mobilize on a grand scale than how to intervene strategically to alter a system which is ready to change" (p. 416).

7 Conclusions

The evidence from the literature reviewed in the preceding chapters generally supports the assertions of the argument considered in this paper:

- Acute care hospitals in Alberta and throughout North America contain significant numbers of patients with medical problems directly or indirectly complicated by their use of alcohol.

Prevalence surveys to date provide only rough estimates and the figures vary according to such factors as type of hospital and population served. Nevertheless, the proportion of patients with alcohol abuse problems among all those admitted to Canada's acute care hospitals has been conservatively estimated to range from about 7% to 15%. There are grounds for believing that 30% is a realistic upper bound while in emergency room settings the figure could be as high as 45%.

- Medical personnel concentrate on diagnosing and treating the secondary complications of alcohol abuse but focus far less effort on identifying the primary addictive disorder.

Indeed, health professionals are generally unaware of the extent of alcohol abuse in general hospital populations and, so far, there have been only isolated efforts to screen hospital inpatients for alcohol abuse. Numerous screening tests and procedures exist, from short, self-administered pencil-and-paper questionnaires to computer-based analyses of extensive data from biochemical tests, to detect abnormal or pathological effects of excessive use of alcohol. No one of these methods is one hundred percent sensitive and specific for alcohol abuse. Each has strengths and weaknesses, but detection rates have increased substantially in those locations where screening has been implemented. Best results are achieved by using data from multiple sources: questionnaires, official records, knowledgeable others, and laboratory tests.

- Though the prevailing approach deals effectively with patients' presenting physical complaints, many of them will experience further increasingly serious health problems and personal crises requiring repeated hospitalization at growing expense to the health care system.

An expanding pool of research findings supports the depiction of alcohol abusers as one important element in a group of frequent and high cost users of health care in North America. The various cost-accounting studies persuasively show that alcohol abuse imposes billion-dollar losses on the economies of the U.S. and Canada through such mechanisms as lost productivity and absenteeism; social welfare and hospital expenses; violence and law enforcement costs; and accidents and property damage. For patients with alcohol abuse complications, these studies also reveal that the trend line for health care costs dips dramatically with intervention and their entry into treatment. The aggregate savings produced by the provision of these services far outweigh their costs.

- Various factors have hampered medical practitioners in the effective identification, intervention, treatment, and referral of inpatients with alcohol-related problems.

Physicians and nurses, like other members of society, often have negative or ambivalent attitudes toward alcoholics which may be imparted or reinforced through their medical education. While the prevailing medical approach to addictions training exposes students to the basic pharmacology of alcohol and its pathogenic effects on various body systems, it less adequately informs them about the psychosocial aspects. It is clearly deficient in preparing them to make a broad-based diagnosis which implicates alcohol abuse and then to intervene effectively with the patient.

There is also a deeply entrenched set of attitudes in society ranging from indifference toward alcoholism to outright denial that addictive disorders are health problems to be frankly discussed and treated. These attitudes are embedded within

public opinion, medical orthodoxy, and the institutional structure responsible for delivering health care services.

Clearly, it would be unreasonable to expect all nurses and doctors to be equally interested in addictions or to pursue the training that would make them skilled in its identification and treatment. There is consensus, however, that they still have responsibility for making at least a preliminary diagnosis and appropriate referral for assessment and treatment. Addictions treatment professionals have a corresponding responsibility to make their services as accessible as possible to the medical community.

- Therefore, an effort should be made to increase the prominence of addictions in medical training. Resources should also be committed to identifying substance abusers in hospital settings and to diverting them into suitable treatment.

The treatments available for substance abusers range from a brief advice-dispensing session with their physician to treatment involving medications (disulfiram, for example) to the assorted psychotherapies offered in treatment units attached to hospitals, in stand-alone facilities, and in community agencies operated on a public, volunteer, or for-profit basis. These alternatives, together with self-care and support groups, represent the continuum of care available to people with addictive illness. Medical practitioners could serve as important "gate-keepers" to these resources.

Only relatively few patients with alcohol abuse complications require an extended stay in hospital once their presenting complaint or acute injuries have been cared for. Long-term hospitalization will be warranted in a small minority of cases for the medical management of severe withdrawal or psychiatric problems.

Nonmedical inpatient and outpatient services yield recovery rates similar to those achieved by hospital-based programs. However, the latter are far more expensive to operate and their use should be limited to patients most in need of medically intensive and highly structured, supportive treatment. These considerations strongly support the concept of the diversion of patients to community-based agencies and programs for thorough assessment, treatment, and aftercare. Advances in this area will also help to integrate substance abuse treatment into the mainstream of the health care system.

References

Addiction Research Foundation. 1983. *Statistics on Alcohol and Drug Use.* Toronto: Alcoholism and Drug Addiction Research Foundation.

Addiction Research Foundation. 1985. *Statistics on Alcohol and Drug Use in Canada and other Countries. Vol. 1. Statistics on Alcohol Use.* Toronto: Alcoholism and Drug Addiction Research Foundation.

American Medical Association. 1973. *Manual on Alcoholism.* Chicago: American Medical Association.

American Psychiatric Association. 1980. *Diagnostic and Statistical Manual of Mental Disorders (DSM III).* Washington D.C.: American Psychiatric Association.

Anderson, J.W. 1975. "Final Report on a Design to Assess the Costs of Alcohol-Related Health Problems in a General Hospital Setting." Mimeographed. Ottawa: Non-Medical Use of Drugs Directorate, Health & Welfare Canada.

Arroyave, F., McKeown, S., and Cooper, S.E. 1980. "Detoxification—An Approach to Developing a Comprehensive Alcoholism Service." *British Journal of Addiction* 75:187-19

Baker, S.L. 1982. "The Veterans Administration Alcoholism Program." *Psychiatric Annals* 12, 4 (April): 443-446.

Bednarek, R.J., Morton, E.D., and Summers, C.C. 1982. "Comprehensive Dependency Treatment Services in a Community Hospital." *Psychiatric Annals* 12, 4 (April): 392-395.

Berry, R.E. and Boland, J.P. 1977. *The Economic Cost of Alcohol Abuse.* New York: The Free Press.

Bissell, L. 1975. "Reaction." Pp. 76-81 in *Involving the Physician Through Alcohol Education and Training.* Conference Proceedings. Bloomfield, Conn.: Eastern Area Alcohol Education & Training Program.

Blume, S.B. 1983. "Is Alcoholism Treatment Worthwhile?" *Bulletin of the New York Academy of Medicine* 49, 2 (March): 171-180.

Bonstedt, T., Ulrich, D.A., Dolinar, L.J., and Johnson, J. 1984. "When and Where Should We Hospitalize Alcoholics?" *Hospital and Community Psychiatry* 35, 10: 1038-1040.

Bottom Line. 1977. "Counting the Cost." *Bottom Line* 1, 3 (Fall): 2-7.

Brody, J.A. and Mills, G.S. 1978. "On Considering Alcohol as a Risk Factor in Specific Diseases." *American Journal of Epidemiology* 107, 6: 462-466.

Brown, K. et al. 1979. "Alcoholism Education for Physicians and Medical Students: An Overview." *Alcohol Health & Research World* 3, 3 (Spring): 2-8.

Brown, T.C. 1972. "Physicians Are Part of the Problem." *Annals of Internal Medicine* 77, 2: 316-317.

Burnum, J.F. 1974. "Outlook for Treating Patients with Self-Destructive Habits." *Annals of Internal Medicine* 81: 387-393.

Campbell, D.T. and Stanley, J.C. 1963. *Experimental and Quasi-Experimental Designs for Research*. Boston: Houghton Mifflin.

Chappel, J.N. 1973. "Attitudinal Barriers to Physician Involvement with Drug Abusers." *JAMA* 224, 7 (May 14): 1011-1013.

Chappel, J.N. and Schnoll, S.H. 1977. "Physician Attitudes—Effect on the Treatment of Chemically Dependent Patients." *JAMA* 237, 21 (May 23): 2318-2319.

Clark, E.G. and Leavell, H.R. 1965. "Levels of Application in Preventative Medicine." Pp. 14-38 in *Preventative Medicine for the Doctor and his Community*, edited by H.R. Leavell and E.G. Clark. New York: McGraw-Hill.

Clark Institute of Psychiatry. 1982. "Southern Alberta Study of Psychiatric Needs and Provisions." Mimeographed. Toronto: Clark Institute of Psychiatry.

Clement, S. 1984. "The Identification of Alcohol-Related Problems by General Practitioners." Mimeographed. Manchester, England: Dep't of Community Medicine, Manchester University.

Collins, G.B., Watson, E.W., and Zrimec, G.L. 1980. "A Hospital Day Care Program for Alcoholics." *General Hospital Psychiatry* 2: 20-22.

Comprehension Care Corporation. 1984. "A Joint Proposal from the Board of the Wetaskiwin General & Auxiliary Hospital & Nursing Home District #81 and Comprehensive Care Corporation to the Honourable David Russell Alberta Minister of Hospitals and Medical Care for the Provision of an Inpatient Substance Abuse Treatment Program." Mimeographed.

Davis, C.N. 1977. "Early Signs of Alcoholism." *JAMA* 238, 2 (July 11): 161-162.

Eckardt, M.J. et al. 1981. "Health Hazards Associated with Alcohol Consumption." *Journal of the American Medical Association* 246, 6 (Aug. 7): 648-666.

Edwards, G., Gross, M.M., Keller, M., Moser, J., and Room, R. (eds.). 1977. *Alcohol-Related Disabilities*. Geneva: World Health Organization.

Feuerlein, W., Ringer, C., Kufner, H., and Antons, K. 1980. "Diagnosis of Alcoholism: The Munich Alcoholism Test (MALT)." Pp. 137-147 in *Currents in Alcoholism*. Vol. VII, edited by M. Galanter. New York: Grune & Stratton.

Fine, E. 1980. "An Introduction to the Diagnosis of Alcoholism." Pp. 131-135 in *Currents in Alcoholism*. Vol. VII, edited by M. Galanter. New York: Grune & Stratton.

Fisher, J.C., Keeley, K.A., Mason, R.L., and Fisher, J.V. 1975. "Physicians and Alcoholics." *Journal of Studies on Alcohol* 36, 5: 626-633.

Fisher, J.V., Fisher, J.C., and Mason, R.L. 1976. "Physicians and Alcoholics." *Journal of Studies on Alcohol* 37, 11: 1686-1693.

Foundation for Health Care Evaluation. 1982. "Detection of the Alcoholic Patient in the Acute Care Setting." *Grassroots* August: 15-21.

Frances, R. and Alexopoulos, G. 1982. "The Inpatient Treatment of the Alcoholic Patient." *Psychiatric Annals* 12, 4 (April): 386-391.

Frankel, G. 1983. "Alcoholism Treatment in the Partial Hospital or Day Program." *Alcohol Health and Research World* (Spring): 32-36.

Galanter, M. 1977. "Initiating Alcoholism Treatment in Medical Services." Pp. 405-417 in *Currents in Alcoholism*. Vol. I, edited by F.A. Seixas. New York: Grune & Stratton.

Goodwin, D.W. 1981. *Alcoholism: The Facts*. Oxford: Oxford University Press.

Heckler, M.M. 1983. *Fifth Special Report to the U.S. Congress on Alcohol and Health*. Rockville, Maryland: U.S. Department of Health and Human Services.

Holt, S., Skinner, H.A., and Israel, Y. 1981. "Early Identification of Alcohol Abuse: 2: Clinical and Laboratory Indicators." *Canadian Medical Association Journal* 124 (May): 1279-1299.

Hunter, C. 1982. "Freestanding Alcohol Treatment Centres—A New Approach to An Old Problem." *Psychiatric Annals* 12, 4 (April): 396-408.

Jankowski, C. and Drum, D.E. 1977. "Criteria for the Diagnosis of Alcoholism." *Archives of Internal Medicine* 137 (Nov.): 1532-1536.

Jarman, C.M.B. and Kellett, J.M. 1979. "Alcoholism in the General Hospital." *British Medical Journal* 2: 469-472.

Jessee, W.F. 1971. "The Medical Student's View of Alcoholism Education." Pp. 24-27 in *Annals of New York Academy of Sciences*. Vol. 178, edited by F.A. Seixas and J.Y. Sutton.

Jonas, S. 1984. "The Case for Change in Medical Education in the United States." *The Lancet* (August 25): 452-454.

Keller, M. 1976. "The Disease Concept of Alcoholism Revisited." *Journal of Studies on Alcohol* 37, 11: 1694-1717.

Kinney, J. and Leaton, G. 1982. *Understanding Alcohol*. New York: Mosby Press.

Kinney, J., Price, T.R.P., and Bergen, B.J. 1984. "Impediments to Alcohol Education." *Journal of Studies on Alcohol* 45, 5: 453-459.

Kissin, B. 1975. "The Education and Training of Medical Students." Pp. 21-23 in *Involving the Physician Through Alcohol Education and Training*. Conference Proceedings. Bloomfield, Conn.: Eastern Area Alcohol Education & Training Program.

Knox, H. 1975. "Discussion." Pp. 71-72 in *Involving the Physician Through Alcohol Education and Training*. Conference Proceedings. Bloomfield, Conn.: Eastern Area Alcohol Education & Training Program.

Knox, W.J. 1982. "Diagnostic Psychological Testing." Pp. 55-63 in *Encyclopedic Handbook of Alcoholism*, edited by E.M. Pattison and E. Kaufman. New York: Gardner Press.

Korcok, M. 1984. "How Can We Teach Students About Alcoholism?" *Canadian Medical Association Journal* 130 (Feb. 1): 305-308.

Latham, W.B. 1983. *Health Care Costs: There are Solutions*. New York: American Management Association.

Leckman, A.L., Umland, B.E., and Blay, M. 1984. "Prevalence of Alcoholism in a Family Practice Center." *The Journal of Family Practice* 18, 6: 867-870.

Lee, B.L. 1984. "Med Schools Fail in Addiction Studies." *The Journal* 37, 8 (August): 1.

Lewis, D.C. and Gordon, A.J. 1983. "Alcoholism and the General Hospital: The Roger Williams Intervention Program." *Bulletin of the New York Academy of Medicine* 59, 2 (March): 181-197.

Madden, J.S. 1979. *A Guide to Alcohol and Drug Dependence*. Bristol: John Wright and Sons.

Marlatt, G.A. 1981. "The Drinking History: Problems of Validity and Reliability." Pp. 25-39 in *Evaluation of the Alcoholic: Implications for Research, Theory and Treatment*, edited by R.E. Meyer, et al. Conference Proceedings. Rockville, Maryland: National Institute on Alcohol Abuse and Alcoholism, U.S. Dept. of Health and Human Services.

Mayfield, D., McLeod, G., and Hall, P. 1974. "The CAGE Questionnaire: Validation of a New Alcoholism Screening Instrument." *American Journal of Psychiatry* 131, 10 (October): 1121-1123.

McGee, A. 1979. "The Hospital's Role in Drug Abuse." *Hospital Trustee* (Nov./Dec.): 9-11.

McIntosh, I.D. 1982. "Alcohol-Related Disabilities in General Hospital Patients: A Critical Assessment of the Evidence." *The International Journal of the Addictions* 17, 4: 609-639.

McIntosh, I.D. 1979. *A Method For Estimating The Proportion of Acute General Hospital Costs in Ontario Attributable to the Use of Alcohol by In-Patients*. Master's Thesis. London, Ontario: University of Western Ontario.

Miller, W.R. 1976. "Alcoholism Scales and Objective Assessment Methods: A Review." *Psychological Bulletin* 83, 4: 649-674.

Millman, R. 1975. "The Career-Teacher Program in Drug and Alcohol Abuse." Pp. 36-45 in *Involving the Physician Through Alcohol Education and Training*. Conference Proceedings. Bloomfield, Conn.: Eastern Area Alcohol Education & Training Program.

Morgan, R.W. 1977. *Prospects for Preventative Medicine*. Occasional Paper 2. Toronto: Ontario Economic Council.

Morse, R.M. and Hurt, R.D. 1979. "Screening For Alcoholism." *JAMA* 242, 24 (Dec. 14): 2688-2690.

Mortimer, R.G., Filkins, L.D., Kerlan, M.W., and Lower, J.S. 1973. "Psychometric Identification of Problem Drinkers." *Journal of Studies on Alcohol* 34: 1332-1335.

Moser, J. 1980. Prevention of Alcohol-Related Problems. Toronto: Alcoholism and Drug Addiction Research Foundation.

Murray, R.M. 1974. "Screening and Early Detection Instruments for Disabilities Related to Alcohol Consumption." Pp. 89-106 in *Alcohol-Related Disabilites*, edited by G. Edwards, M.M. Gross, M. Keller, J. Moser, and R. Room. Geneva: World Health Organization.

National Council on Alcoholism. 1972. "Criteria for The Diagnosis of Alcoholism." *Annals of Internal Medicine* 77: 249-258.

O'Connell, V. 1984. "Alcoholism Counselling in the Psychiatric Hospital Setting." *Alcoholism Treatment Quarterly* 1, 2 (Summer): 11-14.

O'Neill, P. 1983. "Substance Abuse and Acute Hospital Admission." *Australian Alcohol/Drug Review* 2, 1 (January): 35-36.

Osborne, A.C. 1984. No Title. *Canadian Medical Association Journal* 130 (May 1): 1105.

Padmore, T. 1984. "Myriad Illnesses Alert MDs to Familial Alcohol Problems." *The Journal* 13, 9 (Sept. 1): 10.

Paredes, A. 1982. "Treatment of Alcohol Dependence Within the Health Care System." *Psychiatric Annals* 12, 4 (April): 459-467.

Pattison, E.M. 1981. "N.C.A. Criteria." Pp. 3-24 in *Evaluation of the Alcoholic: Implications for Research Theory and Treatment*, edited by R.E. Meyer, et al. Conference Proceedings. Rockville Maryland: National Institute on Alcohol Abuse and Alcoholism, U.S. Dept. of Health & Human Services.

Pattison, E.M. and Kaufman, E. 1982. "The Alcoholism Syndrome: Definitions and Models." Pp. 3-30 in *Encyclopedic Handbook of Alcoholism*, edited by E.M. Pattison and E. Kaufman. New York: Gardner Press.

Pokorny, A.D., Miller, B.A., and Kaplan, H.B. 1972. "The Brief MAST: A Shortened Version of the Michigan Alcoholism Screening Test." *American Journal of Psychiatry* 129: 342-345.

Pokorny, A., Putnam, P., and Fryer, J. 1978. "Drug Abuse and Alcoholism Teaching in U.S. Medical & Osteopathic Schools." *Journal of Medical Education* 53: 816-824.

Pokorny, A.D. and Solomon, J. 1983. "A Follow-Up Survey of Drug Abuse and Alcoholism Teaching in Medical Schools." *Journal of Medical Education* 58 (April): 316-321.

Polich, J.M., Armor, D.J., and Braiker, H.B. 1980. *The Course of Alcoholism: Four Years After Treatment*. Santa Monica: The Rand Corporation. Prepared for the National Institute on Alcohol Abuse and Alcoholism.

Powell, R.A. 1981. *Delivery of Addictions-Related Programs in Hospitals: A Literature Review and Limited Overview of AADAC Activities*. Mimeographed. Edmonton: Alberta Alcohol and Drug Abuse Commission.

Pulver, S. 1975. "The Education & Training of Family Practitioners." Pp. 49-57 in *Involving The Physician Through Alcohol Education and Training*. Conference Proceedings. Bloomfield, Conn.: Eastern Area Alcohol Education & Training Program.

Rabinowitz, E. 1983. "Alcoholism Consultation and Liaison in a General Hospital." *Bulletin of the New York Academy of Medicine* 59, 2 (March): 181-197.

Rich, P. 1984. "Drug Abuse Prevention is Lacking." *Medical Post* (July 10).

Ritchie, J.M. 1980. "The Aliphatic Alcohols." Pp. 376-390 in *The Pharmacological Basis of Therapeutics*. 6th ed., edited by A.G. Goodman, L.S. Goodman, and A. Gilman. New York: MacMillan.

Romney, D.M. and Bynner, J. 1985. "Hospital Staff's Perceptions of the Alcoholic." *The International Journal of the Addictions* 20, 3: 393-402.

Salter, M. 1985. "Privatizing Public Care." *Maclean's* 98, 8 (Feb. 25): 50-51.

Sawka, E. and Hewitt, D. 1984. "Assessing the Medical Community's Interest in Addictions." Mimeographed. Edmonton: Policy & Planning Unit, Alberta Alcohol and Drug Abuse Commission.

Saxe, L., Dougherty, D., Esty, K., and Fine, M. 1983. *The Effectiveness and Costs of Alcoholism Treatment*. Washington, D.C.: Office of Technology Assessment.

Schuckit, M. 1979. *Drug and Alcohol Abuse*. New York: Plenum Publishing.

Seixas, F.A. 1982. "Alcoholism Treatment ... A Descriptive Guide." *Psychiatric Annals* 12, 4 (April): 375-385.

Seixas, F.A. 1975. "Discussion." Pp. 57-62 in *Involving The Physician Through Alcohol Education and Training*. Conference Proceedings. Bloomfield, Conn.: Eastern Area Alcohol Education & Training Program.

Selzer, M.L. 1971. "The Michigan Alcoholism Screening Test (MAST): The Quest for a New Diagnostic Instrument." *American Journal of Psychiatry* 3: 176-181.

Selzer, M.L., Vinokur, A., and Van Rooijen, L. 1975. "A Self-Administered Short Michigan Alcoholism Screening Test (MAST)." *Journal of Studies on Alcohol* 36: 117-126.

Shaw, S. 1981. "Biochemical Alternatives to the Drinking History." Pp. 41-53 in *Evaluation of the Alcoholic: Implications for Research, Theory and Treatment*, edited by R.E. Meyer et al. Rockville, Maryland: National Institute on Alcohol Abuse and Alcoholism, U.S. Dept. of Health & Human Services.

Skinner, H.A. 1981. "Assessment of Alcohol Problems." Pp. 319-369 in *Research Advances in Alcohol and Drug Problems*. Vol. 6, edited by Y. Israel, F.B. Glaser, H. Kalant, R.E. Popham, W. Schmidt, R.G. Smart. New York: Plenum Press.

Skinner, H.A. and Holt, S. 1983. "Early Intervention for Alcohol Problems." *Journal of the Royal College of General Practitioners* 33 (December): 787-791.

Skinner, H.A., Holt, S., Allen, B.A., and Haakonson, H.H. 1980. "Correlation between Medical and Behavioral Data in the Assessment of Alcoholism." *Alcoholism: Clinical and Experimental Research* 4, 4 (Oct.): 371-377.

Skinner, H.A., Holt, S., Schuller, R., Roy, J., and Israel, Y. 1984a. "Identification of Alcohol Abuse Using Laboratory Tests and a History of Trauma." *Annals of Internal Medicine*, In Press.

Skinner, H.A., Palmer, W., McIntosh, M., and Sanchez-Craig, M. 1984b. "Early Intervention For Alcohol Problems with Family Practice Patients." Mimeographed. Toronto: Clinical Institute, Addiction Research Foundation and Dept. of Family and Community Medicine, Toronto General Hospital.

Smart, R.G. and Jarvis, G.K. 1981. "Do Self-Report Studies of Drug Use Really Give Dependable Results?" *Canadian Journal of Criminology* 23, 1 (Jan.): 83-92.

Smith, C.M. and Barnes, G.M. 1977. "Physicians' Perspectives on Alcohol and Drug Problems." *New York State Journal of Medicine* 77: 2140-2142.

Sobell, L.C., Maisto, S.A., Sobell, M.B., and Cooper, A.M. 1979. "Reliability of Alcohol Abusers' Self-Reports of Drinking Behaviour." *Behaviour Research and Therapy* 17: 157-160.

Sobell, L.C., Sobell, M.B., and Nirenberg, T.D. 1982. "Differential Treatment Planning for Alcohol Abusers." Pp. 1140-1151 in *Encyclopedic Handbook of Alcoholism*, edited by E.M. Pattison and E. Kaufman. New York: Gardner Press.

Stark, M.J. and Nichols, H.G. 1977. "Alcohol-Related Admissions to a General Hospital." *Alcohol Health and Research World* 1, 4 (Summer): 11-14.

Stinnet, J.L. 1982. "Outpatient Detoxification of the Alcoholic." *The International Journal of the Addictions* 17, 6: 1031-1046.

Suchman, E.A. 1967. *Evaluative Research*. New York: Russell Sage Foundation.

Swenson, W.M. and Morse, R.M. 1975. "The Use of a Self-Administered Alcoholism Screening Test (SAAST) in a Medical Centre." *Mayo Clinic Proceedings* 50: 204-208.

Synenko, N. 1984. "The Potential For Cost Saving in the Health Care System Through the Implementation of Alcohol and Drug Abuse Treatment Programs: A Hospital Sector Perspective." Mimeographed. Comprehensive Care Corporation.

The Alcoholism Report. 1984a. No Title. *The Alcoholism Report*. The Johnson Institute, Washington: XII, 19 (July 31): 1-3.

The Alcoholism Report. 1984b. No Title. *The Alcoholism Report*. The Johnson Institute, Washington: XIII, 5 (Dec. 31): 4-5.

Webb, E.J., Campbell, D.T., Schwartz, R.D., and Sechnot, L. 1966. *Unobtrusive Measures*. Chicago: Rand McNally.

West, J.W. 1977. "The General Hospital as a Primary Setting for the Treatment of Alcoholism." Pp. 399-403 in *Currents in Alcoholism*. Vol. I, edited by F.A. Seixas. New York: Grune & Stratton.

West, L.J. (ed.). 1984. "Preamble." Pp. 1-8 in *Alcoholism and Related Problems*. Conference Proceedings. Sixty-sixth American Assembly on Public Policy on Alcohol Problems. New York.

Westermeyer, J., Doheny,S., and Stone, B. 1978. "An Assessment of Hospital Care for the Alcoholic Patient." *Alcoholism: Clinical and Experimental Research* 2, 1 (Jan.): 53-57.

Whitfield, C.L. 1982. "Outpatient Management of the Alcoholic Patient." *Psychiatric Annals* 12, 4 (April): 447-458.

Willard, W.R. 1971. "Medical Education and the Problem of Alcoholism." Pp. 17-23 in *Annals of New York Academy of Sciences*. Vol. 178, edited by F.A. Seixas and J.Y. Sutton.

Wilson, A., White, J., and Lange, D.E. 1978. "Outcome Evaluation of a Hospital-Based Alcoholism Treatment Programme." *British Journal of Addiction* 73: 39-45.

Woodruff, R.A., Clayton, P.J., Cloninger, G.R., and Guze, S.B. 1976. "A Brief Method of Screening for Alcoholism." *Diseases of the Nervous System* 37 (Aug.): 434-435.

Working Group on Alcohol Statistics. 1984. *Alcohol in Canada: A National Perspective*. 2nd ed. Ottawa: Health and Welfare Canada.

Zook, C.J. and Moore, F.D. 1980. "High-Cost Users of Medical Care." *The New England Journal of Medicine* 302, 18 (May 1): 996-1002.

Zook, C.J., Savickis, S.F., and Moore, F.D. 1980. "Repeated Hospitalization for the Same Disease: A Multiplier of National Health Costs." *Health and Society* 58, 3: 454-471.